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ECONOMIC AND NON-ECONOMIC BENEFITS OF MANPOWER TRAINING PROGRAMS

(A Case, Alberta Vocational Centre - Edmonton)

A Study

Commissioned by

THE DEPARTMENT OF ADVANCED EDUCATION

GOVERNMENT OF ALBERTA

Prepared by

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DEPARTMENT OF EDUCATIONAL ADMINISTRATION

UNIVERSITY OF ALBERTA

March 15, 1975

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FOREWORD

During the summer of 1974 the researcher* was commissioned by the Department of Advanced Education, Alberta Government to conduct a study concerning Alberta Vocational Centre Training Programs.

The study was designed to use cost-benefit analysis as an evaluation mechanism for success or failure of the training programs. Success was understood to mean economic attractiveness. A secondary aim of the study was to understand success specifically in terms of identifying groups of individuals who benefited most, including those who did not benefit. Whether or not trainees who terminated from the programs were different from those who completed the programs, was the third concern of the study. Finally the study was to recommend broad policy which might provide effective guidelines as the Centre's activities move toward excellence. I believe the objectives have been fulfilled.

The study was the effort of many individuals and institutions. I am indebted to Dr. J. Seger, first Chairman of my doctoral committee and who advised me until his sabbatical leave in December, 1974, Dr. D. Richards (the new Chairman) and Dr. B. McKellips, members of my committee. The knowledge and expertise of these two men in finance and manpower training programs was brought to bear on the conduct

---

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of the study.

Thanks go to Susi and Chuma, to use the names of Dr. Livingstone's servants in Africa, my research assistants: Doris Patrick and Lorna Mumm. Although these assistants received remuneration for the work they did, they spent considerable unpaid overtime particularly during the interviews since most of the them were conducted in the evenings.

The administration at AVC - in particular Mr. Romanko and his assistant Mr. B. Sokolik gave a great deal of assistance throughout the conduct of the study. Through Mr. Fred Williamson and Mr. B. L. Snowden it was easier to contact other individuals and agencies. Several other people and institutions they represent deserve appreciation, only that to mention everybody would make the list too long.

Appreciation is expressed to Dr. G. L. Mowat, past member of my doctoral committee, who discussed the study with me at its infancy, to Dean Horowitz for his continuous encouragement, to Dr. E. Miklos, present Chairman of the Department of Educational Administration, who supported the study through the intersession bursary, and to John Long and Dr. A. Walkington my office mates who read the first draft and provided useful criticisms. I am also indebted to other fellow students who, because of their interest in this study, took time to discuss different aspects of it with me. I want to name Peter Murphy, Mary Nixon and Alf Colvin in this regard.

Finally special thanks and appreciation must go to Kokwe, my wife, who provided indefatigable warm encouragement and helped to proofread the figures presented in the study. Of course I remain responsible for the mistakes and errors of this project report.

Edmonton, Alberta
March 15, 1975.

T. Luta Maliyamkono
Research Project Director

ORGANIZATION OF THE REPORT AND A SUMMARY OF FINDINGS AND RECOMMENDATIONS

Introduction

The study is made up of five chapters. Chapter one introduces the background of the problem. Chapter two identified the methodology involved in the calculations of costs and benefits. Chapter three reports the findings and chapter four examines the interpretation of the findings. The last chapter, five, highlights the recommendations.

Summary of Findings

The two techniques used in this study were the present value and the internal rate of return. All the five programs and their subprograms were tested under these techniques. The major findings may be summarized as follows:

(a) Generally Basic Development Programs: High School and Basic academics were found to have higher present values and greater internal rates of return than the occupationally oriented programs.

(b) There were higher present values and greater internal rates of return both social and private, among the terminated groups for Business Education, Nursing Orderly and High School Programs.

(c) Except for the Custodial and Family Aides Programs, the rest of the programs whether completed or terminated scored greater than zero present value and no less than 10% internal rate of return be it social or private.

(d) When allowances were included in the calculations of the private internal rate of return the following subprograms were found to have over 100% internal rate of return: Basic Academic (completed), Business Education (completed) Nursing Orderly (completed) and High School (terminated).

However, allowances did not raise the present values and the internal rates of return for Family Aides (terminated) and Custodial Program (terminated) above zero.

When X^2 was used to determine statistical significant differences between groups of: Terminated/Completed and Below/Above program internal rate of return the following results were obtained for both categories:

(i) Above mean program internal rate of return were obtained for the individuals who had worked before entering training, such individuals had a tendency of completing their programs.

(ii) Individuals who were not on welfare prior to entering training scored higher internal rates of return and they tended to complete their programs.

(iii) Individuals who did not work before training cited family problems as the major impediment and such individuals tended to complete their programs.

Other demographic variables relating to higher internal rates of return and those relating to completion of programs are reported in Chapter III and interpreted in Chapter IV.

On the whole it was found that the social present value for five programs was $700 and that the private present value was $5598 both at 10% interest rate. The social internal rate of return was 11.7% and 26.6% for private (excluding allowances).

Table PT on page xix summarizes the overall results of social and private present values, and social and private internal rates of return.

Summary of Recommendations

On the basis of social internal rate of return of 11.7% and an overall private internal rate of return of 26% both calculated for 20 years of working life, the AVC (Edmonton) has a justifiable right of existence.

TABLE PT

PRESENT VALUES, INTERNAL RATES OF RETURN, COST, LEFORE AND AFTER TRAINING EARNINGS, MARGINAL BENEFITS AND MARGINAL TAXES FOR ALL PROGRAMS TOGETHER, AT 10% INTEREST RATE

Category of Benefits	Gross Earnings Before Training	Gross Earnings After Training	For 20 Years: Gross Cost	Gross Marginal Benefits	Present Value	Internal Rate of Return	Marginal Taxes & Percentage
Social	5434	6658	5884	773	$700.00	11.7%	$200.00 or 27%
	Net Earnings Before Training	Net Earnings After Training	Net Cost	Net Marginal Benefits	Present Value	Internal Rate of Return	
Private	4707	5730	4538	$1190.00	$5598	26%	

Most of the programs evaluated do pay; some sub-programs which fail to compete economically with others are an illustration that non-monetary benefits are important to the individual, (or else the individual assumed to be rational would not bother to attend training).

Because of already high rates of return without allowances, living allowances paid to trainees as inducements may be reduced or eliminated without seriously damaging the individual's decision to attend or not to attend training.

AVC (Edmonton) should be more oriented to student goals as the individuals who come in with a goal in mind seem to stay and achieve their goals.

Counselling services should be extended and decentralized in order to maximize the use of them except where specialized services are required.

Most of the students stated that family problems impeded their employment opportunities and increased their rate of absenteeism. At the same time it may possibly be allevated by introducing day-care services at the Alberta Vocational Centre.

The present records system is too messy. It is recommended that records be computerized to reduce time and man-hour wastage.

Last but not least, it is recommended that the semester system and program delivery arrangements should be adjusted such that trainees may interrupt programs and come

back at a later date or attend at other than regular day times. One alternative would be to offer shorter and more intensive courses. Another alternative would be to expand part-time continuing education offerings. This probably calls for an expansion of evening credit programs. Also evening credit classes may reduce the rate of drop out. The above are recommended because some programs at present seem to be offered at the time job opportunities are greatest. Such a program of flexibility may minimize the uncomfortable choice between continued training or job opportunity which faces some trainees.

CHAPTER I

INTRODUCING THE NATURE OF THE STUDY

Focus of the Study

Academicians, policy-makers and practicing educational administrators increasingly agree that education ought to be viewed as competing with other forms of public investment and public service for claims on scarce resources (see, for example, Weisbrod, (1964), the Eighth Annual Review of the Economic Council of Canada in Ontario, (1972), Worth Commission, (1972), Blaug, (1966), and Nyerere, (1967)). University education, in particular, is being viewed in this light.

If education is considered an investment, its returns should be measurable. That education can also be considered as consumption will be demonstrated in Chapter II. Miller (1956) measured private returns of education, Schultz (1960) returns from educational stock and Denison (1962) demonstrated that education was one source of economic growth while both Denison and Schultz have extended their work to show the share accounted for by education in economic growth.

Such studies have measured the volume of productivity using earned income as an indicator. Rising earnings are correlated with different levels of education. In a sense, all these measurements might be addressing themselves to the

problem of determining the "point where the last unit of education yields a marginal social benefit equal to its marginal social cost" (Benson, 1968).

On the one hand, increases in expenditure on such education in the post-war period, and the associated impacts on government budgets and tax burdens, have fostered the growth of this point of view. That expenditures in real dollar terms have grown substantially faster than enrolments, due presumably to the nature of the education "industry", has been a contributing factor. On the other hand, in Canada, rapid growth in non-university tertiary education and manpower programmes has increasingly, since the implementation of the Federal Training and Vocational Assistance Act in 1960, provided competition for the education and training dollar. Recent cutbacks in the rate of growth of university budgets have been associated with rapid growth of non-university tertiary education and manpower programmes, the two trends may not be unrelated.

Implicitly, the view has been that the yield on the marginal training and educational dollar is higher if devoted to non-university tertiary education and manpower programmes, than if devoted to the more traditional forms of post-secondary education.

A major idea regarding manpower programs is that there should be pay-offs to society from devoting resources to government-operated or subsidized manpower programmes.

Proponents of manpower programmes have emphasized two types of arguments in support of this view.

The first rests on the assertion that the costs involved in providing such training are more than outweighed by future benefits accrued in the form of enhanced output which results from increased worker productivity. If this were the case, then training programmes would provide for increased allocative efficiency in the utilization of scarce resources. They would also place society on a higher long-run growth path of output (and possibly enable a higher rate of growth). They are likely to provide for an improved unemployment-inflation trade-off, by lessening the possibilities of bottlenecks and structural unemployment arising from a changing, dynamic economy as requirements for new patterns of skill develop, and old patterns become obsolete.

But the assertion immediately raises the issue as to why private decision-makers in a market economy either undertake or are unwilling to undertake these profitable investments on their own in the absence of government intervention. In other words, if the training "investments" are indeed profitable, why haven't individual workers and employers taken advantage of these opportunities privately? The argument, then, points to a variety of reasons similar to those which Marshall (1949) indicated as the special "peculiarities" of the labour market and the many disadvantages which workers face in selling their services,

such as imperfect capital markets, suboptimal information provided to private decision-makers, and the uncertainty and risks involved in the costs and benefits of the training of workers. Such obvious disadvantages call for government action. On this point Somers and Wood (1969:46) write:

> It is natural that private enterprise would develop the best risk individuals and leave others to fend for themselves. Consumers are then required to pick up these pieces. The need for and the development of our federal and state social security and employment service systems are witnesses to this process.

Private insurance schemes, for example, are notoriously known for turning away high-risk cases (Wilcox, 1969).

The second argument emphasizes the possibility of pay-offs, even if costs of training are not outweighed by future benefits in the form of enhanced output. Income distribution and equity considerations might be important. The trainees might be people to whom society finds it desirable to transfer income in any case, and transfers via subsidized training might be a preferred way. Society might value a dollar transfer when self-help is involved more than a pure transfer of one dollar. If such is the case, then, even though training might not pay on the basis of efficiency, it might pay because of the higher valuation society places on this form of transfer over and above that placed on pure income transfers. Evaluation with respect to this social goal is obviously difficult, for we know little about how

much society is willing to pay in order to transfer income via some kind of self-help mechanism, rather than use other alternatives. But his would seem to depend, in part, on the importance of generational effects whereby the future productivity of children might be enhanced more if the family receives income via subsidized training rather than by means of outright grants. However, at the very least, training programmes would have to pass the test of having improved the trainees' capacities by more than enough to offset their own net non-subsidized costs involved in taking training.

Whether or not the trainees are the ones to whom transfer payments should be designated is probably an administrative issue and this study will provide a basis for its discussion.

Implicit Message of Cost Benefit Analysis

At this juncture it is necessary to recall some important steps involved in cost-benefit methodology:

(1) Identify and classify all measurable costs and benefits.

(2) Attach prices to all costs and benefits.

(3) Adjust the priced out values of costs and benefits for the true dimensions involved.

(4) Measure each cost and each benefit.

(5) Compare the adjusted costs and benefits. If the adjusted benefits are greater than the adjusted costs, whatever is measured is worth while and the reverse indicates unprofitability of the investment.

It may seem easy and simple to utilize these steps but there exist virtually insurmountable problems in the employment of these steps. In step one, for example, there are all kinds of arguments as to what should be the standard items to be included in the cost and benefit classifications. Step 3 raises the interest rate problem: the social opportunity cost rate or the rate observable in the private sector. But the most crucial problem is unmeasurability and unpriceability of cost and benefit items. Interested readers wishing to pursue this problem further may refer to Dorfman (1965:2-3). Later in this section common weaknesses of the cost benefit subsectional tools are discussed.

Empirical evidence to substantiate cost benefit studies is not discussed exhaustively but may highlight some major points being made. As we discuss these studies one point must be kept in mind. Costs involve resources in monetary and human form; benefits encompass a variety of things, some of which cannot be captured by the tools as we know them today. Therefore, we shall reserve a large part of the discussion to the analysis of those non-monetary benefits.

Renshaw (1960), Becker (1962), Mincer (1962), Willison (1970), Wilkinson (1966) and Dodge (1972) have related private returns to education, essentially a comparison of costs and benefits looking at estimated life-time earnings. To a large extent the methodologies employed fall into two categories: rates of return and discounted value of future earnings. Neither of the two tools is without blemish, yet they are both capable of "holding things together", for example, they are about the same tools used in other industries where costs are more easily identifiable with outputs.

Much of the criticism may be found in Wilkinson (Chapter 1, 1965), but for a quick review Maliyamkono's (1973) list of criticisms will suffice:

(i) The returns, earnings accrue to education through quantity as well as quality (Morgan and Sirageldin, 1968).

(ii) The tools do not explain the effects of education on personal income distribution (Schultz, 1968).

(iii) One does not know the actual gains, whether higher levels of return for more education result solely from the possession of an "admission ticket" to the job or whether they represent higher levels of productivity achieved by the better educated (Berg, 1970).

(iv) The usefulness of such calculations for allocative purposes assumes a truly competitive market, perfect information and credit facilities equally available to all (Wilkinson, 1965).

(v) These tools do not separate economic benefits derived from other means, other than training function - socialization, for example.

(vi) Slightly different criticism lies in the area of standard costs and standard benefits; lack of uniform definitions as a means of arriving at common interpretation.

(vii) Finally and most important, studies using rate of return and present value techniques fail to capture non-monetary (commonly referred to as non-economic) benefits.

Nevertheless, there are advantages attached to these tools. In the process of shaping the tools, for example, when calculating societal and the individual's cost, both society and institutions realize where the costs are high or low. Equally important, the interpretation of the tools assists the individual to understand the economic behavior, i.e., low and high paying jobs. In this way the choice the individual makes is backed up with some information.

From the standpoint of those who initiate educational programmes, relationship of training and benefits stand out

more clearly than they would have in the abyss of no information. Improvement of such tools will continue to highlight presently obscure notions. For example, when earnings are standardized, the contribution of education alone, separated from influences of ability, motivation and home environment, to earnings may be made. Denison, reported by Blaug (1968:224-25), has suggested that for college and high school education, training contributes over three-fifths of the earnings differentials. It remains to be seen whether or not such a fraction finding may be extended to any other kind of training.

Statement of the Problem

This study was intended to discover the existence or non-existence of benefits derived from selected manpower training programs conducted at the Alberta Vocational Centre, Edmonton. The major objective of this study was to assess the possible yields to society from devoting resources to manpower programmes by evaluating some of the programmes operated by the Alberta Vocational Centre (AVC) located in Edmonton, Alberta.

The Centre offers several short and long programme courses, including basic skill development, business education, nursing orderly training, and custodial training, to mention only those with heavy intake. The Centre also accommodates other programmes offered by other institutions. Those operated by the Centre are funded by the Alberta Department

of Advanced Education and Canada Department of Manpower and Immigration, even though individual students are sponsored by various organizations, for example, the Department of Indian Affairs and Northern Development and the Worker's Compensation Board, formerly the Workmen's Compensation Board. The benefits have two different dimensions. The first dimension relates to the kinds of benefits and the second dimension addresses itself to the question of who benefits.

Regarding the first dimension the study was intended to distinguish benefits that are directly related to the individual trainee who, for one reason or another decided to undergo the training, from those benefits that relate to society. Why, if there are no benefits to be gained, does society, through institutions, make a major contribution to the total cost of adult education? Maybe society gains the increased productivity which in turn raises the amount of taxes paid, reduces welfare payments and crimes as a result of the employment and increased earnings the individual gains after training.

Secondly, one might ask, what kind of benefits are they? Some people have called one kind of benefits economic, in the sense that they are capable of being priced. It is claimed such economic benefits may be measured. Other benefits are considered non-economic, which is an inappropriate term, in my opinion, because the failure to place a price

tag on them merely implies the immaturity of the pricing mechanism. On the other hand, we are assuming that any commodity forwhich there is no uniform price is not an economic good.

This study thus addressed itself to some of these problems identified above. The analysis of costs and benefits of manpower training programs sought mainly to identify different groups[1] in terms of levels of economic benefits as measured by the internal rate of return and present value techniques.

Significance of the Study

In the first place, cost analysis is of interest to us for various reasons:

(i) its management uses within an institution, as Daniel Humphrey has emphasized in the January 31, 1972 issue of The Chronicle of Higher Education:

> . . . we have not explored the possibilities for relocation of our resources in more cost effective ways. . . Improvements are possible in program management to determine the efficiency of activities in relation to their cost. Instead of automatically decreasing services in response to budget cuts, we should be capable of rearranging and reallocating our resources to allow for continuation of the services in the face of decreasing budgets. . .

(ii) its help in providing critical inputs for planning, making major changes in capacity, program structure or institutional policies.

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[1] In relation to demographic data, cost and benefit differentials and complete vs. terminated - by programme.

(iii) its use in obtaining comparisons between institutions, even though we realize no two institutions are identical,

(iv) its basis in justifying institutional efforts to funding sources be they private or public. Through it we are able to determine what prices we charge for educational and institutional services and what resources (in hard cash, in kind and human) are needed for what purposes,

(v) its ability to assist the individual trainee to make rational decisions.

Secondly, this study is unique in that unlike previous studies of manpower training programmes in Alberta, it has related calculation rates of returns to demographic variables. This study is thus of a different order, for different purposes and geared to different populations. The present study would add to the knowledge already known from studies by Dibski (1970), Wallace (1970), Wilson (1970), and Henry (1971), who have examined the post-secondary sector other than manpower training programs in Alberta.

Assumptions

A major assumption of the study is that although an overall evaluation technique may be needed, in the absence of such a technique, cost benefit analysis may capture the most important issues related to costs and benefits of manpower training programs.

Adult training programmes at the Alberta Vocational Centre, Edmonton, are one case of the overall manpower policy package which may be designed to reduce unemployment in the labour market. Thus, findings may represent some probable patterns in manpower policy.

Cross sectional data in follow-up studies of manpower trainees imply control group techniques so that observable changes may be generalized, Hill and Miller, (1967:203-214).

The relationship of cost-benefit analysis to the demographic data of the trainees, together with the difficult-to-measure costs and benefits, will hopefully guide future policy decisions regarding manpower training.

Delimitations of the Study

The delimitations of this study are basically two-sided. One aspect is the nature of the elements within the investigation while the other is the population the study addressed itself to.

The population under investigation was derived from the 1972/73 program intakes of (i) Upgrading Program, (ii) Nursing Orderly Program, (iii) Business Education, (iv) Family Aide and (v) Custodial Program. Only demographic data considered to have influence on costs and benefits of training was gathered from the interviewees and from the institutional records. Reference was made to Davie's (1967) work for specific determinants of costs and benefits.

Limitations of the Study

An obvious limitation is the reliability of the answers given during interviews, answers that could not be checked against the Centre's records. One may argue that human beings tend to respond to non-quantifiable questions in a way that they think will be accepted by the interviewer; and also, individuals have a tendency to "colour" their answers, particularly information pertaining to personal life styles and income. Yet one may assume that there would be more accuracy with data collected under cover of anonymity than with data gathered by an institution.

Secondly, the sample interviewed represents the total population only in general terms.

Thirdly, the mechanics of the study may be such that cost-benefit analysis may not capture all relevant costs and benefits for the manpower training programmes examined, and may not include psychic costs and psychic benefits.

Conclusion

This chapter has introduced the nature of the study, identified the problem and also has identified the limitation, and delimitations pertaining to the study.

CHAPTER II

RESEARCH MODELS AND PROCEDURE

The research design used in the study is outlined in this chapter and a description is given for each of the models employed. The main design was developed from components of benefits and costs. Modifications made in the components and in the exclusion or inclusion of some components was a function of the concepts developed from the review of the literature.

Other models are a methodological approach in the sense that they illustrate the major model. Such determinant tools as net present value and the internal rate of return are employed as calculation techniques to arrive at net benefits.

The rest of this chapter describes the programs which were studied; (frequencies in various groups are included).

Section A (i) - Research Design

The main design is the comparison of streams of income and streams of cost. To do this both streams have to refer to a "benchmark" which essentially is the base year value; this has been called the present value. The formula for the present value analysis is given as:

$$Vo\ (Y) - Vo\ (X) = \sum_{t=1}^{t=m} \frac{Yt}{(1+i)^t} - \sum_{t=1}^{t=n} \frac{X^t}{(1+i)^t} \gtreqless 0$$

where

Y is the incremental earnings in dollars,

t is the number of time periods (years of working life),

i is the interest rate for a time period,

x is the cost (assumed equivalent to the marginal cost).

Conceptually the formula may be construed as to mean that an investment in education is worth while if the present value of the benefits is greater than the present value of costs. This is part one of the model.

Part two of the model uses the internal rate of return defined as that rate which equates the present value of the investment to zero. The formula is given as:

$$Vo\ (Y) - Vo(X) = \sum_{t=1}^{t=m} \frac{Yt}{(1+i)^t} - \sum_{t=1}^{t=n} \frac{Xt}{(1+i)^t} = 0$$

The expansion and modifications of the model will be shown after a hint on the control of biases otherwise likely to affect the path of the modification of the models.

Section A(ii) - Basic Assumptions

Real increase in productivity per capita was adjusted by removing the percentage increase of growth during the

training period. Failure to do this would have resulted in undue increments in the after-training earnings as being wholly a function of training.

The ceteris paribus assumption: adjustments for ability and family background of the trainee were considered irrelevant in manpower education. Adjustments of ability, family influence, ambition, experience and similar influencing factors do not bear standardized weighting factors. Different studies use different weighting factors. It is logical to contend that those influences have had their part played when the trainees first entered job markets before training.

The earnings include wage-earnings and self-employed earnings. The exclusion of the latter category would underestimate the benefits, in that individuals falling in the cateogry of self-employed would be considered unproductive.

Ideally only reported foregone earnings should have been included. This approach would render difficulties when determining marginal changes of productivity. Hence the program mean earnings were used for the non-wage earners before and after attending training, on the assumption that program trainees are in fact a homogeneous group in respect to productivity.

Training was considered wholly as an investment. No adjustments were made for current consumption of education or psychic costs and benefits which means the reported results would underestimate the true returns to education to some extent.

Section A (iii) - Components of the Design Model

As indicated before, the design model shown on pages 1 and 2 encompasses efforts of several people starting with Davie (1967), and it has been used widely. Modifications of Davie's model were necessary to accommodate this study. The Davie model is:

$$Vo\,(Y) - Vo\,(X) = \sum_{t=1}^{t=n} \frac{Yt}{(1+i)^t} - \sum_{t=1}^{t=n} \frac{Xt}{(1+i)^t} \geq 0 \text{ for P.V) or } = 0 \text{ for internal rate of return)}$$

(a) The benefits and costs to society = 0 for the internal rate of return) and will expand the above model in the following manner:

$$[Vo(Y) = (Y + Psy)] - [Vo(X) = (Fp + Copc + Cc - Pt)]$$

$$= \sum_{t=1}^{t=m} \frac{Yt}{(1+i)^t} - \sum_{t=1}^{t=n} \frac{Xt}{(1+i)^t} \geq 0 \text{ P.V.) or } = 0 \text{ internal rate of return)}$$

where

Y - is the real increase in earnings,

Psy - is the psychic benefit, i.e. better citizenry,

Fp is the foregone productivity of the trainee,

Copc is the current operational cost,

Cc is the capital cost,

Pt is the part-time earnings.

(b) The individual's benefits and gains:

$$[Vo(Y) = (Y + Psy)] - [Vo(X) = (Fe + Lwp + Ec)]$$

$$= \sum_{t=1}^{t=m} \frac{Yt}{(1+i)^t} - \sum_{t=1}^{t=n} \frac{Xt}{(1+i)^t} > 0 \quad \text{P.V.) or = 0 internal rate of return)}$$

where

Y is the increase in earnings (net of taxes),

Fe is the opportunity cost (net of taxes),

Lwp is the loss of welfare payments,

Ec is the extra cost (i.e., books),

Section A (iv) - Selecting the Discount Rates

In order to take into account the time value of money in an investment analysis the summation of marginal earnings stream is meaningless unless the marginal earnings for each future time period are brought back to the present value. To do this a discount rate is needed. Dibski (1970, p. 41) concludes that the selection of a discount rate is done arbitrarily.

A variety of discount rates exists and they have been used to serve different purposes for different reasons. Several criteria for discount rates have been suggested:

(a) average returns on common stocks for financial transactions; in Canada, for example, the Toronto Industrial

Index and Dow Jones Industrial Average showed returns on capital ranging from 2.3% to 5.4%, (Dibski, (1970). On the other hand, Edge recommends a reservation rate of 10%, bearing in mind that minimum acceptable return should take into account both the degree of risk and market conditions.

Poums Brothers and Denton (1969) reported that returns from stocks fluctuate from year to year and that the returns varied considerably according to the period of investment, and that before investors' taxes stocks on average return about 10%- 15% per annum.

The nearest rate on long-term government bonds has been used as another way of selecting interest rates for cost-benefit analysis. Prest and Turvey (1965) maintain that rates established on the basis of government bonds are risk-free.

Bank rates on savings deposits are used as the lower limit of discount rates, and the interest on borrowed money as the upper limit. Thomas (1971) concludes that the interest rate should be that which must be paid to obtain funds for an investment.

What is the appropriate discount rate to be used? Perhaps one solution to get around this problem of choice is to use more than one set of discount rates. This allows flexibility and permits choices to the individual to whom the study is useful.

The base discount rate was established at 10%, the risk-free interest on government bonds. The Imperial Bank of Commerce average minimum lending rate for 1973 was 8% with the exception of small businessmen and farmers. At the lower end 4% was selected as the rate that would suffice for someone recognizing that investments in education derives monetary and non-monetary - psychic rewards. For investors in education expecting the highest interest rate or who need to be induced by the highest possible rate, a 14% interest rate was chosen involving an understanding that such high interest rates exist in riskier investment such as common stocks.

Section A(v) - Actual Calculations of the Costs and Benefits Components

Hitherto the description has been trying to indicate that the research design shown at the beginning of Chapter II is indeed the "benchmark" and the subsequent designs have shown the components included in the model. It must be mentioned specifically that "Psy" - psychic benefits and costs were excluded owing to the difficulties of measurements. This means that the benefits have been understated to the extent to which these have been ignored. In this section the methodology of calculating various costs and benefits components are reported.

The cost category involved the following components:

(a) Operational costs: To obtain cost per student day from current operational expenditures, the following procedure was followed. 1972/73 operational expenditures were obtained from the Provincial Treasury. Since these figures included two programs not pertaining to the study, prorations were necessary. First of all, expenditures related to supportive services, for example, services and general administration, were distributed proportionately (after percent representative of each of the six programmes was calculated totalling to 100%) to each of the six programmes. Secondly, expenditures for "occupational English" as the sixth programme was not dealt with.

Having obtained total operational expenditure for the programmes (including expenditure for supportive services), the sum obtained was added onto the foregone cost (see page 9). Finally, the sum of the two cost components was divided by the number of training days and by the total enrolment within each of the programmes for the 1972/73 fiscal year.

Current percentages of operational expenditures were used for the other cost components. The rationale to use percentages based on operational finance for other cost components not budgeted by programme stems from the fact that operational expenditures are usually over three-quarters of any other cost components.

(b) Capital cost for the period 1972/73 was obtained by taking into account the book value of the building and the equipment and an amortization life of 50 years was given to the building. Equipment in excess of $500 cost price was given an amortization life of 5 years. Reasons for such life could be termed arbitrary but they are in line with those of the Department of Public Works. The book values were then given a depreciatory value for every year. In order to keep the figures in the same context the 1971 building and equipment costs were expressed in 1973 dollar purchase power by the use of the "National Series" of the Canadata Southam Construction Index issued by the Business Publications. Southam Construction Index is an acccpted standard measure used by the Quality Surveyors of the Alberta Public Works Department for construction contracts issued to the Department. The choice between "midwest" and National Series" depended largely on the fact that Alberta, though midwest region, stands higher than Manitoba and Saksatchewan in both building material and the cost of labour, both factors give a composite on where rates are contingent. Alberta, and especially Edmonton, comes quite close to the "National Series", of course which is affected by the high costs of Ontario.

Like the Consumer Prices Index the Southam Construction Index counts on 1961 as a base year (i.e., 100). From 1961 to 1971 (when AVC building was constructed) the index rose to 163.6 and by 1973 it had risen to 221 on a yearly average. Since the yearly average was used on all calculations affected by the Consumer Price Index, it was considered consistent to use the yearly average for 1973 on all figures affected by the Southam Price Index. In short, AVC building construction in 1973 would have been $4,000,000 instead of the actual figure of $3,335,285 for April, 1971.

Calculations of capital cost to the level of per student day cost was derived from cost proportions derived from the operational cost.

(c) Foregone Productivity. Davie's (1967) development of the concept of cost of education includes, as a major component, foregone productivity. This is construed as being the part of cost for the society, the government and for the individual trainee. The underlying assumption for the consideration of the foregone income is that a trainee would work productively if he did not choose to attend training.

A number of difficulties arise from this argument. First, it is not ascertained whether or not the trainee would have in fact worked during that time he was in training. The period considered is when there was a high rate of unemployment and, worse still, one of the major reasons for the adult to go back to school is to upgrade or take a trade that will

ensure employablity. There is little doubt, therefore, that lack of employment opportunities prior to training was a function of lack of tradeable skills besides cyclical circumstances.

Second, the fact that the foregone productivity cannot be measured properly. For example, prior to training the earnings did not depend on the level of education the individual trainee had. This point is validated by the varied earnings prior to training employment fetched on the market. Various jobs, i.e., labouring, do not depend on the level of education; rather, they are largely dependent on compensatory factors.

To reduce the gap of uncertainty, foregone productivity was granted to those students who had prior working records, that is, students who had worked for a period of one or more months within twelve months prior to their training at AVC. The volume of productivity was based on the average earnings before training. The before training non-workers were assigned program standard wages on the basis of homogeneity as previously argued.

In the field calculations the foregone productivity captured by the earnings was deflated to the 1973 dollar power by using the Consumer Price Index.

Fp = Ae 1971/72 x per cent of 1973 dollar

where

Ae 1971/72 is the average earnings lasting for a month or more

Fp is the foregone productivity (measured by the average earnings).

Section A (vi) - Private Costs and Benefits

Benefits that accrue to the individual from increased education or training were considered in two categories. Category one included all those benefits that are difficult to measure and, therefore, excluded in the design discussed in this chapter. Such benefits, usually referred to as psychic, involve the consumption aspect of education as a set of benefits. The second order of benefits to the individual were included in the model. Primarily, benefits of this kind relate to increased earnings. Also, additional fringe benefits due to increased earnings were included. To obtain net benefits, taxes were subtracted from the earnings.

Overtime earnings were included in the calculations as overall cost reductions. No other incomes were included because other incomes do not represent labour participation.

Private costs were calculated in reference to foregone costs net of taxes. Amount of loss of transfer payments was added to the cost side, other costs were ignored, for example, books and supplies, because they were provided or covered by the allowance. The actual calculations are shown in Section A(ii) above.

Section B(i) - Construction of an Instrument

To ensure the language was appropriate a pilot test was conducted. Fifteen continuing students at the AVC for each of the intended programs were asked to respond to the questionnaire. Quite a few queries were made by the students. Students continuing with custodial programmes presented the most problems. Later the research team was made to understand by AVC Instructors that the problem was basically that of limited literacy. Secondly, most of them would not have been exposed to paper work in their work experience.

The responses were coded by the research assistants, key punched by the University of Alberta Computer Services and correlations were run on the variables.

From this experience of pilot study the instrument was improved. Copies were sent to the director, Vocational and Technical Education, Program Services, Department of Advanced Education; to two of the members of the researcher's advisory committee; to both the centre supervisor and his assistant. Finally the researcher met with the centre supervisor and his assistant to discuss details of the instrument, based on the comments received from the individuals mentioned above. Contents included in the final copy of the questionnaire were left to the discretion of the researcher, even though the AVC authority* requested that

*Even though shaping the instrument was laborious and tedious work, symbols and the language comments to students at AVC would not have been known without the assistance provided by both W. Romanko and B. Sokolik.

some questions be included for the information of the centre for use at a later date.

Section B(ii) - Preparatory Activities

Various activities were inevitable before the actual follow-up of the identified respondents, and this section discusses the procedure which was followed.

It was necessary to establish a master list of all students who were enrolled in various programmes. Different semesters were identified for different programmes: for the vocational basic skill development intakes of August, 1972 to January, 1973; January, 1973 to June, 1973 and summer 1973. Apparently this kind of categorization makes a complete academic year. Records of students who enrolled earlier than these dates were difficult to sort out and most recent enrolments were deliberately avoided as some students would not have completed their programs. For the same reasons the following enrolment periods were selected for the following programmes; business education programmes, four enrolements; custodial programmes, four enrolments; family aide programmes, three enrolments; nursing orderly programmes, three enrolments.

In each of these continuing education and professional programs two major lists were identified. One list consisted of those students who completed their programs and either were advanced or left AVC; the second list was composed of those students who terminated, that is, students who did not

complete the programmes they were sampled for. The only exception was the vocational skill development, where a third category was found necessary. Categorization of this group, the largest of all groups, was extended to provide for "high" and "basic" schooling and these two sections were further divided into two other groups: those who completed the programmes and those who did not.

Random Sampling: from the master list of the stratified groups random sampling was done in the following manner:

Program	Total Number on the Master List		Sample	Per Cent	Procedure
1. Vocational Programme Basic Skill Development)					
a) High School	Completed	386	100	25%	Every 4th name
	Terminated	200	50	25%	Every 4th name
b) Basic Education	Completed	50	25	50%	Every 2nd name
	Terminated	70	35	50%	Every 2nd name
2. Business Education	Completed	160	80	50%	Every 2nd name
	Terminated	80	40	50%	Every 2nd name
3. Family Aide	Completed	30	10	33 1/3%	Every 3rd name
	Terminated	30	10	33 1/3%	Every 3rd name
4. Nursing Orderly	Completed	50	17	33 1/3%	Every 3rd name
	Terminated	30	10	33 1/3%	Every 3rd name
5. Custodial Program	Completed	50	17	33 1/3%	Every 3rd name
	Terminated	10	10	100%	All students who terminated

Section B(iii) - The Problem of Correct Mailing Address

It was expected that student files would bear both residential and business telephones and mailing addresses. This was not the case for most students. Most of the telephone numbers and addresses obtainable from the files were out of service, either students had moved or changed their phone numbers. This problem necessitated extensive use of a phone call prior to mailing out the questionnaire. About 50% of the subjects could not be reached through this avenue and the research team sought the assistance of Advanced Education Authority to allow the team to co-operate with other agencies.

Section B(iv) - Period Spent in Training

Ideally the after-training benefits should have taken into consideration the total number of days a student spent in training regardless of the programme initially pursued. For example, a student who was grouped by our sample procedure as being in Business Education may have taken some courses in Vocational Education prior to gaining admission in the Business Education Programme. This applied in particular to immigrants (e.g., people whose mother tongue was not English). In a case like this it is misleading to count on only the time the student was in Business Education programme as responsible for any after-training benefits.

Unfortunately, it was impossible to establish a catalogue of the total number of days each student spent for each of the programmes he or she was enrolled in. The records were not available, for one; capital cost associated to students who were in training before April, 1971) that is, before the centre was built) would be another difficulty.

Inclusion of total number of training days and all programmes a student was enrolled in would facilitate the calculations of foregone productivity. If a student entered AVC training in January, 1971, but he was sampled for a program in 1972, then the question might be where to base the foregone productivity of 1972 if in fact the student worked up to December, 1970. This problem is dealt with under the subtitle, "foregone productivity".

Having considered all these factors, it was decided that training time would be by program (e.g. the program the student was sampled for).

The procedure of ignoring any other time a student was in training except for what he was sampled for reduces the total cost to a certain extent, and, therefore, gives undue credit to the benefits of training.

Section B(v) - Establishing a Deduction Rate

Establishing an average deduction rate involved three steps:

1. Gather sample.
2. Calculate the total number of school days for Vocational students.
3. Determine days in which students were docked pay.

First of all, a sample was determined. This was done by selecting 10% of the respondents at random. The sample included 19 respondents from the various programmes.

Secondly, the calculations of the number of school days in each student's programme was done. This involved going back to the files of each student to determine the exact commencement and completion dates of his course. The number of holidays and weekends in which they were not required to attend was then subtracted from this total. This process was followed for each student as the length of courses varied and many students terminated early.

The next step was to determine how many days each of the programmes' students were deducted payment. This was done by going to the registers of each of the courses. The number of days absent on which they were not excused from class, either for sickness or a personal problem were counted, to give the number of days on which pay was deducted.

In the vocational programme, however, this process was impractical as it would have first involved going back to the files to establish the classes in which each student was enrolled. One would then have to go to the register of

every separate class in which students were registered.

To determine the days deducted for these students, first of all the total number of classes students were absent from was determined. To do this, student pay cards had to be used. The cards indicated the total classes absent in which no deductions were made. This number varied for each student. It was based on a system which allowed three classes absent the first month of attendance and four for every following month. After subtracting allowable absenteeism from the classes absent, net classes for which deductions were made was obtained. These were then divided by three to give the total number of days.

The total number of days in which deductions were made for each student was divided by the total number of students for the average deduction rate: the rate of how many days the students were deducted pay. The established rate was 3.3%.

Conclusion

This chapter has presented the model employed for the entire study. Problems incumbent in the model have been stated and modifications thereof discussed. The chapter also presents details of the instrumentation, sample selection procedure and the preliminary activities involved prior to the actual conduct of the study.

CHAPTER III

This chapter reports the results of the findings and the analysis of the social and private present values and social and private rates of return. In the first section the social present values and the internal rates of return to all programs and subprograms are reported. The second part of the chapter discusses and reports the private present values and the internal rates of return to all five programs and the five subprograms.

SOCIAL BENEFITS

Using the formulae outlined in the previous chapter, the social internal rates of return, and present values of discounted earnings streams were calculated. Ability and family influence as possible multipliers were assumed to have ceased to be functional the first time individuals went out seeking employment before training. The marginal benefits were wholly considered as a function of training. No adjustment was made for possible unemployment. Projected earnings streams assume continuous productivity, whereas that there are possibilities of individuals failing to work continuously for reasons of their choice or for cyclical circumstances. In the absence of such adjustments benefits might have been overestimated, so that conclusions regarding the marginal increase in productivity was in fact a function of training need to be considered with caution.

For this reason results are given for every ten-year period, assuming that after ten years the benefits accruing to the society due to the training achieved dissipate.

A major assumption was made that the earnings would remain constant for the entire working life. Notice must be taken, though, that the appropriate timing for the assumed dissipation of knowledge gained through training is that which adds to a greater percentage of age category of the program to come to the measured or standard retiring age. For example, if over 50% of the trainees in Business Education program fall into the age category of 25 or below, forty years of working life would be the most appropriate time.

Tables 1 to 12 show the present discounted values at different time periods for each of the programs and for each of the subprograms, and at selected rates of interest which are 4%, 10%, and 14%; the mean cost for each of the programs, and mean earnings before training, mean earnings after training, and marginal benefits. Column (i) in each of the tables indicates the length of payoff period in years. Mean cost is taken as being equivalent to the marginal cost.

At the bottom of each of the tables different internal rates of return are shown for different periods of working life. The internal rate of return against the time period should be understood as the rates of interest at which benefits are just equal to costs, after a certain amount of time during which the training benefits are assumed to

have dissipated. The internal rates of return are higher to about 20 years of working life, and after that they tend to level off.

There are two tables for each of the programs. One table presents information discussed above for the trainees who completed the program they were sampled for, and the other table presents information for the trainees who did not complete the program they were sampled for, and referred to as "terminated".

Business Education Program

Table 1 shows that mean cost for those who completed the program was $4,928, the mean earnings before training was $4,819 and the mean earnings after training was $5,959, the difference being marginal benefits of $1,140. At 4% interest rate the benefit would outweigh the costs within 4 to 5 years, between 5 and 6 years at 10% interest rate, and between 7 and 8 years at the interest rate of 14%.

The internal rates of return are 19.1% at 10 years, 22.7% at 20 years, 22.1% at 30 years and the same at 40 years.

Table 2 shows before training mean earnings of $4,305, after training mean earnings of $5,517, hence an increase of $1,212 for terminated. At the interest rate of 4% of the benefits outweigh the costs between the third and fourth year, between the 4th and 5th at 10% interest rate and between the 5th and 6th year at the interest rate of 14%.

TABLE 1

SOCIAL PRESENT VALUES AND INTERNAL RATES OF RETURN IN 1973 DOLLARS

FOR BUSINESS EDUCATION PROGRAM COMPLETED

(a) Interest Rate	(b) Time in Years	(c) Social Present Values	(d) Mean Cost	(e) Mean Earnings Before Training	(f) Mean Earnings After Training	(g) Marginal Benefit	(h) Break-even Point (yrs.)
4%	10 yrs.	4,318					
	20 yrs.	10,564	4,928	4,819	5,959	1,140	4 - 5
	30 yrs.	14,784					
	40 yrs.	17,635					
10%	10 yrs.	2,076					
	20 yrs.	4,777	4,928	4,819	5,959	1,140	5 - 6
	30 yrs.	5,818					
	40 yrs.	6,219					
14%	10 yrs.	1,018					
	20 yrs.	2,622					
	30 yrs.	3,054	4,928	4,819	5,959	1,140	7 - 8
	40 yrs.	3,171					

Internal Rate of Return	10 yrs.	19.1%
	20 yrs.	22.7%
	30 yrs.	23.1%
	40 yrs.	23.1%

TABLE 2

SOCIAL PRESENT VALUES AND INTERNAL RATES OF RETURN IN 1973 DOLLARS

FOR BUSINESS EDUCATION PROGRAM TERMINATED

(a) Interest Rate	(b) Time in Years	(c) Social Present Values	(d) Mean Cost	(e) Mean Earnings Before Training	(f) Mean Earnings After Training	(g) Marginal Benefit	(h) Break-even Point (yrs.)
4%	10 yrs.	5,509	4,318	4,305	5,517	1,211	3 - 4
	20 yrs.	12,149					
	30 yrs.	16,635					
	40 yrs.	19,665					
10%	10 yrs.	3,127	4,318	4,305	5,517	1,211	4 - 5
	20 yrs.	5,997					
	30 yrs.	7,104					
	40 yrs.	7,531					
14%	10 yrs.	2,001	4,318	4,305	5,517	1,211	5 - 6
	20 yrs.	3,707					
	30 yrs.	4,166					
	40 yrs.	4,290					

Internal Rate of Return	10 yrs.	25.1%
	20 yrs.	27.9%
	30 yrs.	28.0%
	40 yrs.	28.1%

As shown in this table, the internal rates of return are higher than those for the trainees who completed the program. At 10 years the internal rate of return is 25.1% (as compared to 19.1% for the trainees who completed the program); at 20 years it is 27.9%, after 30 years it is 28% and 28% after 40 years.

The social present value for the terminated is higher than for the completed. With 4% as an interest rate it is $19,665 as compared to $17,635 after 40 years; at 10% rate of interest it is $7,531 as compared to $6,219 for the other group and at the interest rate of 14% and after 40 years the social present value is $4,290, as compared to $3,054 for the trainees who stayed in training until the end of the program. In this case the function of high present value among the terminated was the low cost involved.

Nursing Orderly Program

Table 3 presents information on the nursing orderly program. At the rate of interest of 4% the social present values are $1,807 after 10 years, $9,644 after 20 years, $14,938 after 30 years and $18,514 after 40 years. At the interest rate of 10% the present values are $1,004, $2,383, $3,690, and $4,193 after 10, 20, 30 and 40 years respectively. When the rate of interest is 14% the present values are -$2332, -$319, $223, and $369 after 10, 20 30 and 40 years respectively. The mean cost was $9,791; the mean earnings

TABLE 3

SOCIAL PRESENT VALUES AND INTERNAL RATES OF RETURN IN 1973 DOLLARS

NURSING ORDERLY COMPLETED

(a) Interest Rate	(b) Time in Years	(c) Social Present Values	(d) Mean Cost	(e) Mean Earnings Before Training	(f) Mean Earnings After Training	(g) Marginal Benefit	(h) Break-even Point (yrs.)
4%	10 yrs.	1,807	9,791	6,193	7,623	1,430	8 - 9
	20 yrs.	9,644					
	30 yrs.	14,938					
	40 yrs.	18,514					
10%	10 yrs.	1,004	9,791	6,193	7,623	1,430	13 - 14
	20 yrs.	2,383					
	30 yrs.	3,690					
	40 yrs.	4,193					
14%	10 yrs.	-2,332	9,791	6,193	7,623	1,430	25 - 26
	20 yrs.	-319					
	30 yrs.	223					
	40 yrs.	369					

Internal Rate of Return	10 yrs.	7.6%
	20 yrs.	13.4%
	30 yrs.	14.3%
	40 yrs.	14.5%

before training was $6,193, increasing by $1,430 to $7,623 after training. At the rate of interest of 4% the social benefits outweigh the costs within 8 to 9 years; at 10% within 13 to 14 years and at the interest rate of 14% it takes 25 to 26 years for the social benefits to outweigh the costs.

The internal rates of return for different time periods are 7.6% after 10 years, 13.4% after 20 years, 14.3% after 30 years and 14.5% after 40 years.

Table 4 presents a similar analysis for the nursing orderly (terminated) program. The internal rates of return for different time periods are much higher than those presented in Table 3 for the nursing orderly (completed) program. After 10 years the internal rate of return is 16.1%, 30.3% after 20 years, 20.7% after 30 years and 20.8% after 40 years. The social present values at different rates of interest are: $4,256 after 10 years, $11,332 after 20 years, $16,112 after 30 years, $19,341 after 40 years, all at the interest rate of 4%; $1,717 after 10 years, $4,776 after 20 years, $5,956 after 30 years and $6,410 after 40 years, all at the interst rate of 10%. At the interest rate of 14% the social present values were: $518 after 10 years, $2,335 after 20 years, $2,825 after 30 years and $2,958 after 40 years. The mean cost was $6,216 while the mean earnings was $4,411 and $5,702 before and after training respectively. The marginal social benefit was

TABLE 4

SOCIAL PRESENT VALUES AND INTERNAL RATES OF RETURN IN 1973 DOLLARS

NURSING ORDERLY TERMINATED

(a) Interest Rate	(b) Time in Years	(c) Social Present Values	(d) Mean Cost	(e) Mean Earnings Before Training	(f) Mean Earnings After Training	(g) Marginal Benefit	(h) Break-even Point (yrs.)
4%	10 yrs.	4,256					
	20 yrs.	11,332					
			6,216	4,411	5,702	1,291	5 - 6
	30 yrs.	16,112					
	40 yrs.	19,341					
10%	10 yrs.	1,717					
	20 yrs.	4,776					
			6,216	4,411	5,702	1,291	6 - 7
	30 yrs.	5,956					
	40 yrs.	6,410					
14%	10 yrs.	518					
	20 yrs.	2,335					
			6,216	4,411	5,702	1,291	8 - 9
	30 yrs.	2,825					
	40 yrs.	2,958					

Internal Rates of Return	10 yrs.	16.1%
	20 yrs.	20.3%
	30 yrs.	20.7%
	40 yrs.	20.8%

$1,291. Social benefits would outweigh social costs within 5 to 6 years at 4% interest rate, between 6 and 7 years at 10%, and 8 to 9 at the interest rate of 14%.

In this program, as was the case for the Business Education program, the terminated had higher internal rates of return as compared to the internal rates of return for the complete due to low costs. After 10 years the internal rate of return was 16.1%, 20.3% after 20 years, 20.7% after 30 years and 20.8% after 40 years.

Family Aid Program

Table 5 presents the figures in a similar fashion as the foregoing tables for the Family Aid Program (completed) At 4% rate of interest the social present values are: $1,225, $4,952, $7,470 and $9,171 for 10, 20, 30 and 40 years respectively. At 10% rate of interest the social present values are: -$111, $1,499, $2,120, $2,360 for periods after 10, 20, 30 and 40 years respectively. The social present value at 14% rate of interest after 10 years is -$743, $213 after 20 years, $472 after 30 years and $541 after 40 years. The mean cost in this program was $4,290, the mean before and after training earnings were $3,684 and $4,364 respectively. The marginal benefits were $680. At 4% of interest the benefits would outweigh the costs within 7 to 8 years, between 10 to 11 years at 10% rate of interest and between 17 and 18 years at 14% rate of interest.

TABLE 5

SOCIAL PRESENT VALUES AND INTERNAL RATES OF RETURN IN 1973 DOLLARS

FOR FAMILY AID COMPLETED

(a) Interest Rate	(b) Time in Years	(c) Social Present Values	(d) Mean Cost	(e) Mean Earnings Before Training	(f) Mean Earnings After Training	(g) Marginal Benefit	(h) Break-even Point (yrs.)
4%	10 yrs.	1,225					
	20 yrs.	4,952					
			4,290	3,684	4,364	680	7 - 8
	30 yrs.	7,470					
	40 yrs.	9,171					
10%	10 yrs.	-111					
	20 yrs.	1,499					
			4,290	3,684	4,364	680	10 - 11
	30 yrs.	2,120					
	40 yrs.	2,360					
14%	10 yrs.	-743					
	20 yrs.	213					
			4,290	3,684	4,364	680	17 - 18
	30 yrs.	472					
	40 yrs.	541					

Internal Rates of Return	10 yrs.	9.4%
	20 yrs.	14.9%
	30 yrs.	15.6%
	40 yrs.	15.8%

The internal rates of return after 10 years are 9.4%, 14.9% after 20 years, 15.6$ after 30 years and 15.6% after 40 years.

Table 6 presents information for the Family Aid (terminated) Program. The mean cost was $5,838 and the mean earnings before training was $5,496, dropping to $4,623 after training. The marginal social loss was -$872. Negative rates of return for the terminated was a function of its high cost and mainly the low productivity the terminated produced after training. At all three selected rates of interest the present values are negative. Since no purpose would be satisfied by calculating negative rates of return, they have not been calculated.

High School Program

Table 7 shows the mean cost of $5,796 for the High School (completed) Program, mean before training earnings of $5,739 and mean after training earnings of $6,842. The marginal social benefits amount to $1,102. Benefits outweigh costs between 6 and 7 years at 4%, between 7 to 8 at 10% and between 10 and 11 years at 14% rate of interest. The present values of gross benefits at different rates of interest are: $3,144 (after 10 years), $9,184 (after 20 years), $13,265 (after 30 years), and $16,021 (after 40 years) at 4% rate of interest. At 10% rate of interest the present values are: $977 (10 years), $3,588 (after 20 years), $4,595 (after 30 years), and $4,983 (after 40 years). At 14% rate

TABLE 6

SOCIAL PRESENT VALUES AND INTERNAL RATES OF RETURN IN 1973 DOLLARS

FOR FAMILY AID TERMINATED

(a) Interest Rate	(b) Time in Years	(c) Social Present Values	(d) Mean Cost	(e) Mean Earnings Before Training	(f) Mean Earnings After Training	(g) Marginal Benefit	(h) Break-even Point (yrs.)
4%	10 yrs.	-12,915	5,838	5,496	4,623	-872	
	20 yrs.	-17,695					
	30 yrs.	-20,925					
	40 yrs.	-23,107					
10%	10 yrs.	-11,199	5,838	5,496	4,623	-872	
	20 yrs.	-13,277					
	30 yrs.	-14,063					
	40 yrs.	-14,370					
14%	10 yrs.	-10,389	5,838	5,496	4,623	-872	
	20 yrs.	-11,616					
	30 yrs.	-11,948					
	40 yrs.	-12,037					

Internal Rates of Return - Nil

TABLE 7

SOCIAL PRESENT VALUES AND INTERNAL RATES OF RETURN IN 1973 DOLLARS

FOR HIGH SCHOOL COMPLETED

(a) Interest Rate	(b) Time in Years	(c) Social Present Values	(d) Mean Cost	(e) Mean Earnings Before Training	(f) Mean Earnings After Training	(g) Marginal Benefit	(h) Break-even Point (yrs.)
4%	10 yrs.	3,144	5,796	5,739	6,842	1,102	6 - 7
	20 yrs.	9,184					
	30 yrs.	13,265					
	40 yrs.	16,021					
10%	10 yrs.	977	5,796	5,739	6,842	1,102	7 - 8
	20 yrs.	3,588					
	30 yrs.	4,595					
	40 yrs.	4,983					
14%	10 yrs.	-46	5,796	5,739	6,842	1,102	10 - 11
	20 yrs.	1,504					
	30 yrs.	1,922					
	40 yrs.	2,035					

Internal Rates of Return	10 yrs.	13.8%
	20 yrs.	18.4%
	30 yrs.	18.9%
	40 yrs.	19.0%

of interest the present values were: -$46 (after 10 years), $1,504 (after 20 years), $1,922 (after 30 years), and $2,035 (after 40 years).

The internal rates of return were: 14.8% at 10 years time period, 18.4% at 20 years, 18.9% at 30 years and 19.0% after 40 years.

Table 8 presents information for the High School (terminated) Program. The mean cost was $5,236, mean earnings before training was $5,094, changing to $7,435 after training, giving $2,341 as the social marginal benefit. At 4% interest rate the social present values ranged from $13,754 (after 10 years) to $14,105 (after 40 years). At 10% interest rate the social present value was $9,150 after 10 years and $17,660 after 40 years. At 14% the range of social present values was from $6,976 (after 10 years) to $11,399 (after 40 years). The pay-off period is between the second and third year at all the three selected rates of interest.

The internal rates of return are 43.5% after 10 years, 44.7% after 20, 30 and 40 years of working life. Both the present values and the internal rate of return among the terminated were higher than those of the completed. The main reason is that there was a greater increase in productivity among the terminated trainees.

TABLE 8

SOCIAL PRESENT VALUES AND INTERNAL RATES OF RETURN IN 1973 DOLLARS

FOR HIGH SCHOOL TERMINATED

(a) Interest Rate	(b) Time in Years	(c) Social Present Values	(d) Mean Cost	(e) Mean Earnings Before Training	(f) Mean Earnings After Training	(g) Marginal Benefit	(h) Break-even Point (yrs.)
4%	10 yrs.	13,754	5,236	5,094	7,435	2,341	2 - 3
	20 yrs.	26,583					
	30 yrs.	35,250					
	40 yrs.	41,105					
10%	10 yrs.	9,150	5,236	5,094	7,435	2,341	2 - 3
	20 yrs.	14,697					
	30 yrs.	16,835					
	40 yrs.	17,660					
14%	10 yrs.	6,976	5,236	5,094	7,435	2,341	2 - 3
	20 yrs.	10,270					
	30 yrs.	11,159					
	40 yrs.	11,399					

Internal Rates of Return	10 yrs.	43.5%
	20 yrs.	44.7%
	30 yrs.	44.7%
	40 yrs.	44.7%

Basic Academic Program

Table 9 shows different information for the Basic Academic (completed) Program. The program pays within the second and third years at the three selected interest rates. The mean cost was $5,592, the mean earnings was $5,651 and $8,830 before and after training respectively. The social marginal benefit was $3,179.

The social present values ranged from $20,192 after 10 years to $57,329 after 40 years at 4% rate of interest, from $1,394 for 10 years and $25,495 for 40 years at 10% rate of interest and from $10,989 to $16,994 after 10 and 40 years respectively at 14% rate of interest.

The internal rates of return are higher than those for the completed group. After 10 years the internal rate of return is 56.2% and for 20, 30 and 40 years it remained fixed at 56.8%.

As table 10 shows, the mean cost for the Basic Academic (terminated) Program was $7,295. The mean before and after training earnings were $7,064 and $7,954 respectively and the marginal social benefits were $889. The social present values at different rates of interest were: at 4%, -$70 (10 years), $4,803 (20 years), $8,096 (30 years), and $10,099 (30 years), and $1,413 (40 years); at 14%, -$2,645 (19 years), -$1,394 (20 years), -$1,056 (30 years) and -$965 (40 years). At 4% interest rate the benefits outweigh the costs after the tenth year and at 10% they do so between

TABLE 9

SOCIAL PRESENT VALUES AND INTERNAL RATES OF RETURN IN 1973 DOLLARS

FOR ACADEMIC BASIC COMPLETED

(a) Interest Rate	(b) Time in Years	(c) Social Present Values	(d) Mean Cost	(e) Mean Earnings Before Training	(f) Mean Earnings After Training	(g) Marginal Benefit	(h) Break-even Point (yrs.)
4%	10 yrs.	20,192	5,592	5,651	8,830	3,179	2 - 3
	20 yrs.	37,611					
	30 yrs.	49,379					
	40 yrs.	57,329					
10%	10 yrs.	13,941	5,592	5,651	8,830	3,179	2 - 3
	20 yrs.	21,472					
	30 yrs.	24,375					
	40 yrs.	25,495					
14%	10 yrs.	10,989	5,592	5,651	8,830	3,179	2 - 3
	20 yrs.	15,462					
	30 yrs.	16,669					
	40 yrs.	16,994					

Internal Rates of Return	10 yrs.	56.2%
	20 yrs.	56.8%
	30 yrs.	56.8%
	40 yrs.	56.8%

TABLE 10

SOCIAL PRESENT VALUES AND INTERNAL RATES OF RETURN IN 1973 DOLLARS

FOR ACADEMIC BASIC TERMINATED

(a) Interest Rate	(b) Time in Years	(c) Social Present Values	(d) Mean Cost	(e) Mean Earnings Before Training	(f) Mean Earnings After Training	(g) Marginal Benefit	(h) Break-even Point (yrs.)
4%	10 yrs.	-70	7,285	7,064	7,954	889	10 - 11
	20 yrs.	4,803					
	30 yrs.	8,096					
	40 yrs.	10,320					
10%	10 yrs.	-1,819	7,285	7,064	7,954	889	18 - 19
	20 yrs.	287					
	30 yrs.	1,099					
	40 yrs.	1,413					
14%	10 yrs.	-2,045	7,285	7,064	7,954	889	Not Within 40 yrs.
	20 yrs.	-1,394					
	30 yrs.	-1,056					
	40 yrs.	- 965					

Internal Rates of Return	10 yrs.	3.8%
	20 yrs.	10.6%
	30 yrs.	11.8%
	40 yrs.	12.1%

the 18th and 19th year; at 14% the benefits do not outweigh costs within 40 years of working life.

Unlike the High School Program, the internal rates of return in this program are lower for the terminated than they are for the completed. After 10 years the rate is 3.8%, 10.6% after 20 years, 11.8% after 30 years and 12.1% after 40 years.

Custodial Program

Table 11 shows the mean cost of $5,865 for the Custodial (completed) Program; mean earnings before and after training of $5,264 and $6,805 respectively. The marginal benefits were $1,540. The pay-off period is between the 4th and 5th years at 4% and between the 5th and 6th years at 10% and 14% rate of interest.

The social present values at 4% rate of interest are: after 10 years $6,631, after 20 years $15,073, after 30 years $20,776, after 40 years $24,629. At 10% interest rate they are $3,601 after 10 years, $7,251 after 20 years, $8,658 after 30 years, $9,201 after 40 years. At 14% rate of interest they are $2,171 after 10 years, $4,339 after 20 years, $4,923 after 30 years and $5,081 after 40 years.

The internal rates of return range from 22.9% to 26.3% for periods after 10 years and 40 years respectively. After 20 years it would be 26.0% and 26.2% after 30 years.

Table 12 presents different facts for the Basic Academic (terminated) Program. The benefits are short by

TABLE 11

SOCIAL PRESENT VALUES AND INTERNAL RATES OF RETURN IN 1973 DOLLARS

FOR CUSTODIAL COMPLETED

Interest Rate	Time in Years	Social Present Values	Mean Cost	Mean Earnings Before Training	Mean Earnings After Training	Marginal Benefit	Break-even Point (yrs.)
4%	10 yrs.	6,631	5,865	5,264	6,805	1,540	4 - 5
	20 yrs.	15,073					
	30 yrs.	20,776					
	40 yrs.	24,629					
10%	10 yrs.	3,601	5,865	5,264	6,805	1,540	5 - 6
	20 yrs.	7,251					
	30 yrs.	8,658					
	40 yrs.	9,201					
14%	10 yrs.	2,171	5,865	5,264	6,805	1,540	5 - 6
	20 yrs.	4,339					
	30 yrs.	4,923					
	40 yrs.	5,081					

Internal Rates of Return	10 yrs.	22.9%
	20 yrs.	26.0%
	30 yrs.	26.2%
	40 yrs.	26.3%

TABLE 12

SOCIAL PRESENT VALUES AND INTERNAL RATES OF RETURN IN 1973 DOLLARS

FOR CUSTODIAL TERMINATED

(a) Interest Rate	(b) Time in Years	(c) Social Present Values	(d) Mean Cost	(e) Mean Earnings Before Training	(f) Mean Earnings After Training	(g) Marginal Benefit	(h) Break-even Point (yrs.)
4%	10 yrs.	-9,988	6,962	6,638	6,265	-373	
	20 yrs.	-12,031					
	30 yrs.	-13,412					
	40 yrs.	-14,345					
10%	10 yrs.	-9,254	6,962	6,638	6,265	-373	
	20 yrs.	-10,138					
	30 yrs.	-10,478					
	40 yrs.	-10,610					
14%	10 yrs.	-8,908	6,962	6,638	6,265	-373	
	20 yrs.	-9,433					
	30 yrs.	-9,574					
	40 yrs.	-9,612					

Internal Rates of Return: Nil

-$373 for the mean earnings after training is $6,265 while before training it was $6,638. The mean cost was $6,962, hence making it impossible for the costs to outweigh benefits.

The social present values at different interest rates are all negative. For example, at 4% they range from -$9,988 (after 10 years) to -$14,345 (after 40 years); at 10% the range is from -$9,254 to -$10,610 after 10 and 40 years respectively and at 14% the range was from -$8,908 after a time period of 10 years to -$9,612 after a time period of 40 years.

No negative internal rates of return were calculated.

PRIVATE BENEFITS

The standard measures followed in the calculations of social benefits were repeated to determine private benefits. Few exceptions and alterations were made. For the private benefits only net earnings (after taxes) were considered. Gross earnings before and after training after subtracting taxes were discounted. In the cost component net earnings were obtained from gross earnings before training. For the individuals who were not productively engaged the mean program net earnings was assumed to be proper foregone net income. For individuals who did not work before but were entitled to welfare payments, the net earnings attributable to attending training was welfare payments foregone. It was assumed that such individuals would have continued to receive

welfare payments during the entire time they were in training. Net benefits were derived by subtracting taxes from gross earnings after training. No after-training welfare recipients were included in the calculations. To include after-training welfare payments would give undue benefits. Ironically, if an individual was on welfare before training at the rate of $4,000 per year and after training the same individual received $4,500 welfare payments, one would be talking about marginal benefits of $500, and the sum of $500 would be included in the calculations of present values and the internal rates of return. Practicably, one cannot deny the gain of $500 but it would be a conceptual error to attribute such a gain to the training the individual has attended.

The second order of calculating private returns included the allowances paid by various sponsoring agents. The allowances were considered as inducements to attend training and the calculations were intended to determine the effects of such allowances. One would ask the question, "What would the internal rates of return be with inducements received by trainees?"

The term, "effects" may be misleading. Its interpretation should be seen in the light of deviations from the present values and internal rates of return for different time periods, upward or downward, from the established present values and internal rates of return exclusive of allowances.

Each program (sub-program) has two tables, (a), which presents figures without allowances, and (b) which shows figures, allowances included. The tables show mean cost, mean before-training net earnings, mean after-training net earnings and net marginal benefits. Pay-off period is also shown for each of the sub-programs. A short report for each of the tables presents figures for the discounted present value and the internal rate of return of only up to the 20th year. As the tables will reveal, benefits after 20 years tend to level off and the additional sum is negligible.

Business Education (completed). At the interest rate of 4% the benefits outweigh costs between the second and third year, between fourth and fifth years at 10% rate of interest and between the fifth and sixth year at 14% rate of interest. The mean cost was $4,025. The before and after training net earnings differed by $1,112. At 4% the private present value after 20 years was $1,089, $5,443 at 10% and $3,340 at 14% rate of interest. The rate of return after 20 years would be 27.4%.

Table 13(b) shows the same kind of information with allowances. Mean cost was $2,457. The marginal benefits were higher than the mean cost, thus the program pays the individual within one year. The discounted present values are: $33,970 at 4%, $22,811 at 10% and $15,295 at 14% rate of interest. The computer program was set to calculate rates of return up to 100% and this program with allowances

TABLE 13 (a)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITHOUT ALLOWANCES) FOR BUSINESS EDUCATION COMPLETED

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	4,995					
	20 yrs.	1,089					
			4,025	4,025	5,137	1,112	3 and 4
	30 yrs.	15,206					
	40 yrs.	17,987					
10%	10 yrs.	2,808					
	20 yrs.	5,443					
			4,025	4,025	5,137	1,112	4 and 5
	30 yrs.	6,458					
	40 yrs.	6,850					
14%	10 yrs.	1,775					
	20 yrs.	3,340					
			4,025	4,025	5,137		5 and 6
	30 yrs.	3,762					
	40 yrs.	3,876					

Internal Rates of Return After	10 yrs.	24.6%
	20 yrs.	27.4%
	30 yrs.	27.6%
	40 yrs.	27.6%

TABLE 13 (b)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITH ALLOWANCES) FOR BUSINESS EDUCATION COMPLETED

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	19,283					
	20 yrs.	33,970	2,457	2,457	5,137	2,680	Within One Year
	30 yrs.	43,893					
	40 yrs.	50,596					
10%	10 yrs.	14,012					
	20 yrs.	20,362	2,457	2,457	5,137	2,680	1 and 2
	30 yrs.	22,811					
	40 yrs.	23,754					
14%	10 yrs.	11,524					
	20 yrs.	15,295	2,457	2,457	5,137	2,680	1 and 2
	30 yrs.	16,312					
	40 yrs.	16,587					

Internal Rates of Return After	10 yrs. 20 yrs. 30 yrs. 40 yrs.	N/A (benefits over 100%)

the rate of return is over 100%.

Business Education (Terminated): The marginal net benefits were $1,440, obtained from before-training net earnings of $3,561 and the after-training net earnings of $5,000, as Table 14 (a) shows. At 4% rate of interest the program pays between the second and third year and after 20 years the present value is $16,018. At 10% the program pays between the second and third year, the present value is $8,704 and at 14% the program pays between the third and fourth year. The present value is $5,980. the internal rate of return is 40.4%, 13.0% higher than that of the "completed" group.

Table 14 (b) shows that the program would pay between the first and second year for all the selected interest rates. Because of the allowances the marginal net benefits are only $131 lower than the mean before-training earnings, thus the rate of return for a period of 20 years is 94.9%. The present values at different interest rates are $30,529 for 4%, $18,166 for 10% and $13,562 for 14%.

Nursing Orderly (completed). Without allowances the program pays within seven to eight years at 4% interest rate, nine to ten years at 10% and between the fourteenth and fifteenth years at 14%. The net marginal benefits amount to $884. The present values are $6,612, $2,122 and $450 at 4%, 10% and 14% interest rates. For a period of twenty

TABLE 14 (a)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITHOUT ALLOWANCES) FOR BUSINESS EDUCATION TERMINATED

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	8,124					
	20 yrs.	16,018					
			3,561	3,561	5,001	1,440	2 and 3
	30 yrs.	21,351					
	40 yrs.	24,954					
10%	10 yrs.	5,291					
	20 yrs.	8,704					
			3,561	3,561	5,001	1,440	2 and 3
	30 yrs.	10,020					
	40 yrs.	10,527					
14%	10 yrs.	3,953					
	20 yrs.	5,980					
			3,561	3,561	5,001	1,440	3 and 4
	30 yrs.	6,527					
	40 yrs.	6,675					

Internal Rates of Return After	10 yrs.	38.9%
	20 yrs.	40.4%
	30 yrs.	40.5%
	40 yrs.	40.5%

TABLE 14 (b)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITH ALLOWANCES) FOR BUSINESS EDUCATION TERMINATED

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	17,185					
	20 yrs.	30,529	2,566	2,566	5,001	2,435	1 and 2
	30 yrs.	39,543					
	40 yrs.	45,633					
10%	10 yrs.	12,396					
	20 yrs.	18,166	2,566	2,566	5,001	2,435	1 and 2
	30 yrs.	20,390					
	40 yrs.	21,247					
14%	10 yrs.	10,135					
	20 yrs.	13,562	2,566	2,566	5,001	2,435	1 and 2
	30 yrs.	14,486					
	40 yrs.	14,735					

Internal Rate of Return After	10 yrs.	94.8%
	20 yrs.	94.9%
	30 yrs.	94.9%
	40 yrs.	94.9%

discounted years the internal rate of return is 15.4%. This is shown in Table 15(a).

Table 15(b) shows an amount of $3,218 as marginal net benefits. Owing to additional benefits by the allowances, the program pays within one year at 4%, between the first and second year at 10% and between the first and second year at 14% interest rate. Since the marginal benefits are way above the before-training net earnings, the internal rates of return were over 100%, thus not calculated. The present values shown are $40,670 for 4% rate of interest, $24,330 for 10% and $18,245 for 14% rate of interest.

Nursing Orderly (terminated): Table 16(a) shows the present values as $8,481 at 4% interest rate, $3,812 at 10% and $2,073 at 14% rate of interest. The net before-training earnings were $4,017 and the after-training net earnings were $4,937. The net marginal benefits were $119. Benefits outweigh costs between four and five years at 4% and 10% rates of interest and between five and six years at 14%. The internal rate of return up to 20 years is 22.5%.

Table 16(b) presents similar information but calculations include allowances. At the interest rate of 4% the present value is $23,511, $13,612 at 10% and $9,926 at 14% rate of interest. Pay-off period at all the interest rates is between the first and second year of working life. The internal rate of return is 65.3%.

TABLE 15 (a)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITHOUT ALLOWANCES) FOR NURSING ORDERLY COMPLETED

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	1,766					
	20 yrs.	6,612					
			5,406	5,406	6,291	884	7 and 8
	30 yrs.	9,885					
	40 yrs.	12,097					
10%	10 yrs.	27					
	20 yrs.	2,122					
			5,406	5,406	6,291	884	9 and 10
	30 yrs.	2,930					
	40 yrs.	3,241					
14%	10 yrs.	-793					
	20 yrs.	450					
			5,406	5,406	6,291	884	14 and 15
	30 yrs.	786					
	40 yrs.	676					

Internal Rates of Return After	10 yrs.	10.1%
	20 yrs.	15.4%
	30 yrs.	16.2%
	40 yrs.	16.3%

TABLE 15 (b)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITH ALLOWANCES) FOR NURSING ORDERLY COMPLETED

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	23,034					
	20 yrs.	40,670	3,072	3,072	6,291	3,218	Within One Year
	30 yrs.	52,585					
	40 yrs.	60,634					
10%	10 yrs.	16,705					
	20 yrs.	24,330	3,072	3,072	6,291	3,218	1 and 2
	30 yrs.	27,270					
	40 yrs.	28,403					
14%	10 yrs.	13,716					
	20 yrs.	18,245	3,072	3,072	6,291	3,218	1 and 2
	30 yrs.	19,467					
	40 yrs.	19,796					

Internal Rates of Return After	10 yrs. 20 yrs. 30 yrs. 40 yrs.	N/A (benefits over 100%)

TABLE 16 (a)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITHOUT ALLOWANCES) FOR NURSING ORDERLY TERMINATED

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	3,442					
	20 yrs.	8,481					
			4,017	4,017	4,937	919	8 and 9
	30 yrs.	11,886					
	40 yrs.	14,186					
10%	10 yrs.	1,633					
	20 yrs.	3,812					
			4,017	4,017	4,937	919	10 and 11
	30 yrs.	4,652					
	40 yrs.	4,976					
14%	10 yrs.	779					
	20 yrs.	2,073					
			4,017	4,017	4,937	919	14 and 15
	30 yrs.	2,422					
	40 yrs.	2,517					

Internal Rates of Return After	10 yrs.	18.8%
	20 yrs.	22.5%
	30 yrs.	22.8%
	40 yrs.	22.9%

TABLE 16 (b)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITH ALLOWANCES) FOR NURSING ORDERLY TERMINATED

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	12,827					
	20 yrs.	23,511	2,987	2,987	4,937	1,949	1 and 2
	30 yrs.	30,729					
	40 yrs.	35,605					
10%	10 yrs.	8,993					
	20 yrs.	13,612	2,987	2,987	4,937	1,949	1 and 2
	30 yrs.	15,393					
	40 yrs.	16,080					
14%	10 yrs.	7,183					
	20 yrs.	9,926	2,987	2,987	4,937	1,949	1 and 2
	30 yrs.	10,666					
	40 yrs.	10,866					

Internal Rates of Return After	10 yrs.	64.8%
	20 yrs.	65.3%
	30 yrs.	65.3%
	40 yrs.	65.3%

Family Aid (completed). Table 17(a) shows pay-off periods as follows: Nine to eleven years at 4% rate of interest with the net present value of $2,164, sixteen to seventeen years at 10% with the net present value of $153 and when the interest rate of 14% was used the net present value became negative. Within forty years of working life the program would not pay at 14% rate of interest.

The internal rate of return after the 20th year is 10.7%.

Table 17(b) calculations include allowances. At 4% rate of interest the present value is $7,639 and the pay-off period is between the fourth and fifty year, at 10% the present value is $3,723 and the pay-off period is between the fourth and fifth year. At the interest rate of 14% the present value is $2,264 and the pay-off period is between the fifth and sixth year. With allowances the internal rate of return shifts from 10.6% to 26.9%.

Family Aid (terminated): Table 18(a) shows negative net benefits of -$871, negative present values at 4%, 10% and 14% rates of interest. Table 18(b) shows negative present values at the selected rates of return but marginal loss is reduced form -$871 to -$750, the difference between which is the allowance effect. No internal rates of return are calculated.

TABLE 17 (a)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITHOUT ALLOWANCES) FOR FAMILY AID COMPLETED

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	-6					
	20 yrs.	2,164					
			3,220	3,220	3,616	396	9 and 10
	30 yrs.	3,631					
	40 yrs.	4,622					
10%	10 yrs.	-785					
	20 yrs.	153					
			3,220	3,220	3,616	396	16 to 17
	30 yrs.	515					
	40 yrs.	654					
14%	10 yrs.	-1,153					
	20 yrs.	-595					
			3,220	3,220	3,616	396	Nil
	30 yrs.	-445					
	40 yrs.	-404					

Internal Rates of Return After	10 yrs.	4.0%
	20 yrs.	10.7%
	30 yrs.	11.9%
	40 yrs.	12.2%

TABLE 17 (b)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973

DOLLARS (WITH ALLOWANCES) FOR FAMILY AID COMPLETED

Interest Rates	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	3,412					
	20 yrs.	7,639	2,845	2,845	3,616	771	4 and 5
	30 yrs.	10,495					
	40 yrs.	12,425					
10%	10 yrs.	1,895					
	20 yrs.	3,723	2,845	2,845	3,616	771	4 and 5
	30 yrs.	4,427					
	40 yrs.	4,699					
14%	10 yrs.	1,179					
	20 yrs.	2,264	2,845	2,845	3,616	771	5 and 6
	30 yrs.	2,557					
	40 yrs.	2,636					

Internal Rates of Return After	10 yrs.	23.9%
	20 yrs.	26.9%
	30 yrs.	27.1%
	40 yrs.	27.1%

TABLE 18 (a)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITHOUT ALLOWANCES) FOR FAMILY AID (TERMINATED)

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	-12,100					
	20 yrs.	16,874					
			5,033	5,033	4,162	-871	
	30 yrs.	-20,100					
	40 yrs.	-22,279					
10%	10 yrs.	-10,387					
	20 yrs.	-12,451					
			5,033	5,033	4,162	-871	
	30 yrs.	-13,247					
	40 yrs.	-13,554					
14%	10 yrs.	-9,578					
	20 yrs.	-10,804					
			5,033	5,033	4,162	-871	
	30 yrs.	-11,134					
	40 yrs.	-11,224					

Internal Rates of Return After	10 yrs.	N/A
	20 yrs.	
	30 yrs.	
	40 yrs.	

TABLE 18 (b)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITH ALLOWANCES) FOR FAMILY AID (TERMINATED)

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	-10,995					
	20 yrs.	-15,105					
			4,912	4,912	4,162	-750	-
	30 yrs.	-17,882					
	40 yrs.	-19,758					
10%	10 yrs.	-9,520					
	20 yrs.	-11,297					
			4,912	4,912	4,162	-750	-
	30 yrs.	-11,982					
	40 yrs.	-12,247					
14%	10 yrs.	-8,824					
	20 yrs.	-9,879					
			4,912	4,912	4,162	-750	-
	30 yrs.	-10,164					
	40 yrs.	-10,241					

Internal Rates of Return After	10 yrs. 20 yrs. 30 yrs. 40 yrs.	Nil (Less than zero)

High School (completed). Table 19(a) shows the following net present values: $10.250 at 4% interest rate, program paid up between the fifth and sixth years, $4,643 at 10%, program paid up between the sixth and seventh year, and $2,556 at 14% rate of interest when the pay-off period is between the eighth and ninth year. The mean net after-training benefits outweigh the mean cost by $1,104. The internal rate of return after 20 years is 22.8%.

Table 19(b) shows present values and the internal rate of return when allowances are included in the calculations. Setting the interest rate at 4% the present value is $31,616, at 10% the present value is $18,575 and at 14% it is $13,719. Mean cost is $3,293 compared to the marginal net benefit of $2,568. The pay-off period at the three interest rates is between the first and second year.

High School (terminated): The present values, presented in Table 20(a) are $31,052 at 4%, $17,959 at 10% and $13,084 at 14% at 20 years. The benefits outweigh the costs by $2,578, making the pay-off period fall between the first and second year. The internal rate of return is 64.5% after 20 years.

Table 20(b) shows that the pay-off period is within the range of one year, because the marginal net benefits shoot up to $3,964. The mean cost is reduced by the allowances to $2,609. The present values shown are $51,274 at 4%, $31,145 at 10%, and $23,650 at 14% rate of interest. The

TABLE 19 (a)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITHOUT ALLOWANCES) FOR HIGH SCHOOL (COMPLETED)

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	4,199					
	20 yrs.	10,250					
			4,758	4,758	5,862	1,104	5 and 6
	30 yrs.	14,338					
	40 yrs.	17,099					
10%	10 yrs.	2,027					
	20 yrs.	4,643					
			4,758	4,758	5,862	1,104	6 and 7
	30 yrs.	5,652					
	40 yrs.	6,041					
14%	10 yrs.	1,002					
	20 yrs.	2,556					
			4,758	4,758	5,862	1,104	7 and 8
	30 yrs.	2,975					
	40 yrs.	3,088					

Internal Rates of Return After	10 yrs.	19.2%
	20 yrs.	22.8%
	30 yrs.	23.2%
	40 yrs.	23.2%

TABLE 19 (b)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITH ALLOWANCES) FOR HIGH SCHOOL (COMPLETED)

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	17,541					
	20 yrs.	31,616	3,293	3,293	5,862	2,568	1 and 2
	30 yrs.	41,124					
	40 yrs.	47,548					
10%	10 yrs.	12,490					
	20 yrs.	18,575	3,293	3,293	5,862	2,568	1 and 2
	30 yrs.	20,921					
	40 yrs.	21,826					
14%	10 yrs.	10,105					
	20 yrs.	13,719	3,293	3,293	5,862	2,568	1 and 2
	30 yrs.	14,694					
	40 yrs.	14,957					

Internal Rates of Return After	10 yrs.	77.7%
	20 yrs.	78.0%
	30 yrs.	78.0%
	40 yrs.	78.0%

TABLE 20 (a)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITHOUT ALLOWANCES) FOR HIGH SCHOOL (TERMINATED)

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	16,921					
	20 yrs.	31,052	3,995	3,995	6,574	2,578	1 and 2
	30 yrs.	40,598					
	40 yrs.	47,047					
10%	10 yrs.	11,850					
	20 yrs.	17,959	3,995	3,995	6,574	2,578	1 and 2
	30 yrs.	20,315					
	40 yrs.	21,223					
14%	10 yrs.	9,456					
	20 yrs.	13,084	3,995	3,995	6,574	2,578	1 and 2
	30 yrs.	14,063					
	40 yrs.	14,327					

Internal Rates of Return After	10 yrs.	64.1%
	20 yrs.	64.5%
	30 yrs.	64.5%
	40 yrs.	64.5%

TABLE 20(b)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITH ALLOWANCES) FOR HIGH SCHOOL (TERMINATED)

Interest Rates	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	29,548					
	20 yrs.	51,274					
			2,609	2,609	6,574	3,964	Within One Year And
	30 yrs.	65,950					
	40 yrs.	75,865					
10%	10 yrs.	21,752					
	20 yrs.	31,145					
			2,609	2,609	6,574	3,964	Within One Year And
	30 yrs.	34,766					
	40 yrs.	36,163					
14%	10 yrs.	18,071					
	20 yrs.	23,650					
			2,609	2,609	6,574	3,964	Within One Year And
	30 yrs.	25,155					
	40 yrs.	25,560					

Internal Rates of Return After	10 yrs. 20 yrs. 30 yrs. 40 yrs.	N/A (benefits over 100%)

internal rate of return is over 100%, thus not shown.

Acadmemic Basic (completed). Table 21(a) presents the following net present values: $31,444 at 4%, $17,889 at 10%, and $12,842 at 14% interest rates. Net benefits outweigh net costs by $2,669 and the pay-off periods are between the first and second year at 4%, between the second and third year at 10% and 14%. The internal rate of return is 55.1%.

Table 21(b) has similar information when allowances are taken into account. The mean cost is $3,052 and the after-training benefit is $7,511 with the marginal net benefit of $4,459. Present values are: $57,547 at 4%, $34,910 at 10% and $26,480 at 14% rate of interest. Pay-off period is within one year of working life and the internal rate of return is over 100%, thus not calculated.

Academic Basic (terminated): Table 22(a) shows that the benefits outweigh costs within six to seven years at the interest rate of 4% while the present value is $8,167, between the eighth and ninth year at the interest rate of 10% while the present value is $3,920, and between the eleventh and twelfth year at the interest rate of 14% while the present value is $1,059. The internal rate of return is 17.2%.

Table 22(b) with allowances includes the sum of $2,240 as benefits. The program pay-off period is between the second and the third year at 4%, 10% and 14% rates of

TABLE 21 (a)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITHOUT ALLOWANCES) FOR ACADEMIC BASIC (COMPLETED)

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	16,814					
	20 yrs.	31,144	4,841	4,841	7,511	2,669	1 and 2
	30 yrs.	41,328					
	40 yrs.	48,005					
10%	10 yrs.	11,564					
	20 yrs.	17,889	4,841	4,841	7,511	2,669	2 and 3
	30 yrs.	20,328					
	40 yrs.	21,268					
14%	10 yrs.	9,085					
	20 yrs.	12,842	4,841	4,841	7,511	2,669	2 and 3
	30 yrs.	13,885					
	40 yrs.	14,128					

Internal Rates of Return After	10 yrs.	54.4%
	20 yrs.	55.1%
	30 yrs.	55.1%
	40 yrs.	55.1%

TABLE 21 (b)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITH ALLOWANCES) FOR ACADEMIC BASIC (COMPLETED)

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	33,114	3,052	3,052	7,511	4,459	Within One Year
	20 yrs.	57,547					
	30 yrs.	74,053					
	40 yrs.	85,204					
10%	10 yrs.	24,346	3,052	3,052	7,511	4,459	Within One Year
	20 yrs.	34,910					
	30 yrs.	38,982					
	40 yrs.	40,553					
14%	10 yrs.	20,206	3,052	3,052	7,511	4,459	Within One Year
	20 yrs.	26,480					
	30 yrs.	28,172					
	40 yrs.	28,629					

Internal Rates of Return After
10 yrs.
20 yrs.
30 yrs.
40 yrs.
N/A (benefits over 100%)

TABLE 22 (a)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITHOUT ALLOWANCES) FOR ACADEMIC BASIC (TERMINATED)

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	2,577					
	20 yrs.	8,167					
			5,697	5,697	6,717	1,020	6 and 7
	30 yrs.	11,944					
	40 yrs.	14,495					
10%	10 yrs.	571					
	20 yrs.	2,988					
			5,697	5,697	6,717	1,020	8 and 9
	30 yrs.	3,920					
	40 yrs.	4,279					
14%	10 yrs.	-375					
	20 yrs.	1,059					
			5,697	5,697	6,717	1,020	11 and 12
	30 yrs.	1,446					
	40 yrs.	1,551					

Internal Rates of Return After	10 yrs.	12.3%
	20 yrs.	17.2%
	30 yrs.	17.8%
	40 yrs.	17.9%

TABLE 22 (b)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973

DOLLARS (WITH ALLOWANCES) FOR ACADEMIC BASIC (TERMINATED)

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	13,698					
	20 yrs.	25,976					
			4,476	4,476	6,717	2,240	2 and 3
	30 yrs.	34,271					
	40 yrs.	39,875					
10%	10 yrs.	9,292					
	20 yrs.	14,600					
			4,476	4,476	6,717	2,240	2 and 3
	30 yrs.	16,647					
	40 yrs.	17,436					
14%	10 yrs.	7,211					
	20 yrs.	10,364					
			4,476	4,476	6,717	2,240	2 and 3
	30 yrs.	11,214					
	40 yrs.	11,444					

Internal Rates of Return After	10 yrs.	49.1%
	20 yrs.	50.0%
	30 yrs.	50.1%
	40 yrs.	50.1%

interest. The present values are $25,976, $14,600 and $10.364 at 4%, and 14% rates of interest respectively.

The internal rate of return after 20 years changes from 17.2% when allowances are excluded to 50.0% when allowances are included in the calculations.

Custodial (completed). Table 23(a) presents values as follows: $19,565 at 4%, $10,665 at 10% and $7,351 at 14% rate of interest. The benefits outweigh costs by $1,753 and costs are paid off between the second and third year of working life at all three selected interest rates.

The internal rate of return is 41.1%.

Table 23(b) shows an amount of $2,019 as marginal net benefits. The mean cost is reduced by the inducement allowances from $4,258 to $3,992 while the net after-training benefits remain the same. The present values are: $23,459 at 4%, $13,204 at 10%, $9,386 at 14% rate of interest. Pay-off period is between the second and third year for each of the three selected interest rates.

The new internal rate of return is 50.6%.

Custodial (terminated): Tables 24(a) & 24(b) show that the net after-training benefits were less than the net mean cost by -$1,257. All the present values are thus negative: -$23,563 at 4%, -$17,179 at 10% and -$14,802 at 14% rate of interest.

The internal rate of return was not calculated because of the net loss of -$1,257.

TABLE 23 (a)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITHOUT ALLOWANCES) FOR CUSTODIAL (COMPLETED)

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	9,959					
	20 yrs.	19,565	4,258	4,258	6,011	1,753	2 and 3
	30 yrs.	26,054					
	40 yrs.	30,437					
10%	10 yrs.	6,512					
	20 yrs.	10,665	4,258	4,258	6,011	1,753	2 and 3
	30 yrs.	12,266					
	40 yrs.	12,883					
14%	10 yrs.	4,884					
	20 yrs.	7,351	4,258	4,258	6,011	1,753	2 and 3
	30 yrs.	8,016					
	40 yrs.	8,196					

Internal Rates of Return After	10 yrs.	39.7%
	20 yrs.	41.1%
	30 yrs.	41.2%
	40 yrs.	41.2%

TABLE 23 (b)

PRIVATE PRESENT VALUES AND THE PRIVATE INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITH ALLOWANCES) FOR CUSTODIAL (COMPLETED)

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	12,391	3,992	3,992	6,011	2,019	2 and 3
	20 yrs.	23,459					
	30 yrs.	30,936					
	40 yrs.	35,988					
10%	10 yrs.	8,419	3,992	3,992	6,011	2,019	2 and 3
	20 yrs.	13,204					
	30 yrs.	15,049					
	40 yrs.	15,761					
14%	10 yrs.	6,544	3,992	3,992	6,011	2,019	2 and 3
	20 yrs.	9,386					
	30 yrs.	10,152					
	40 yrs.	10,359					

Internal Rates of Return After	10 yrs.	49.7%
	20 yrs.	50.6%
	30 yrs.	50.6%
	40 yrs.	50.6%

TABLE 24 (a)

PRIVATE PRESENT VALUES AND THE PRESENT INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITHOUT ALLOWANCES) FOR CUSTODIAL (TERMINATED)

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	-16,672					
	20 yrs.	-20,563					
			6,473	6,473	5,216	-1,257	-
	30 yrs.	-28,218					
	40 yrs.	-31,362					
10%	10 yrs.	-14,200					
	20 yrs.	-17,179					
			6,473	6,473	5,216	-1,257	-
	30 yrs.	-18,327					
	40 yrs.	-18,770					
14%	10 yrs.	-13,032					
	20 yrs.	-14,802					
			6,473	6,473	5,216	-1,257	-
	30 yrs.	-15,279					
	40 yrs.	-15,408					

Internal Rates of Return After	10 yrs.	
	20 yrs.	
	30 yrs.	Nil
	40 yrs.	

TABLE 24 (b)

PRIVATE PRESENT VALUES AND THE PRESENT INTERNAL RATES OF RETURN IN 1973 DOLLARS (WITH ALLOWANCES) FOR CUSTODIAL (TERMINATED)

Interest Rate	Time in Years	Present Value	Mean Cost	Mean Before Training Net Earnings	Mean After Training Net Earnings	Marginal Benefits Or Loss	Pay-Off Period (yrs) Between
4%	10 yrs.	-15,394	6,333	6,333	5,216	-1,117	-
	20 yrs.	-21,515					
	30 yrs.	-25,651					
	40 yrs.	-28,444					
10%	10 yrs.	-13,197	6,333	6,333	5,316	-1,117	-
	20 yrs.	-15,844					
	30 yrs.	-16,864					
	40 yrs.	-17,257					
14%	10 yrs.	-12,160	6,333	6,333	5,316	-1,117	-
	20 yrs.	-13,732					
	30 yrs.	-14,156					
	40 yrs.	-14,270					

Internal Rates of Return After
- 10 yrs.
- 20 yrs.
- 30 yrs.
- 40 yrs.

N/A (Less than zero)

DEMOGRAPHIC VARIABLES, THE INTERNAL RATE OF RETURN AND COMPLETE VS. TERMINATED

An attempt was made to relate demographic data to the two established dependent variables: Terminated against Completed, and Below against Above internal rate of return for each program. In essence the exercise was intended to explain the groupings. The way in which the data was collected did not allow parametric tests. Even in cases of age and income levels, because respondents checked pre-determined categories those too were considered dichotomous therefore the non-parametric test, CHI Square, was used for all the variables.

All the CHI Square tables presented are significant beyond the .05 point level, which means the differences observed between the groups have a possibility of happening by chance.

The two sub-programs: Custodial (terminated) and Family Aid (terminated) were excluded in the calculations of the X^2 because of negative internal rates of return.

Demographic Variables and the Internal Rate of Return

Frequencies observed at the end of Chapter II were followed when establishing groups of demographic variables were significant at point 0.05 level of significance: age, present residence, reason for leaving last job, employment record before training, employment record after training,

employment record after training, reasons for being unemployed after training and welfare payments before training.

The indications were that higher rates of return were associated with: individuals at 31 and above 31 years of age, individuals who were in Edmonton and Calgary before training, trainees who considered their jobs before training to be unsatisfactory, trainees who worked before attending training, trainees who were employed after training, trainees who did not work after training because of family problems and trainees who did not receive welfare payments before attending training.

For details see Tables 27 to 46 of Appendix A.

Demographic Variables and Completed and Terminated Groupings

Different groups were established for each of the demographic variables as a result of the frequencies reported in Chapter II. When CHI-Square was used to determine variables whose groupings were significant at .05 the following were obtained: sex, before AVC educational level, appreciation of knowledge, better communication in the family, attention to physical fitness, major goal at AVC, degree of accomplishment at AVC, preference of jobs, employment record before AVC, reason for not being employed before AVC, job and training relationship, student loan and welfare payments before AVC.

The indications were that those who were prone to remain at AVC until the end of their programs were: females, trainees who had between grade 7 and 12 level of education before AVC, trainees who felt they had little to gain in the appreciation of knowledge per se, and trainees who preferred their present jobs to the jobs they did prior to training.

The second order of indications was that whether the trainees completed their programs or terminated the majority felt that they gained much in improved communication within their families, the majority were attentive to physical fitness, the majority graded their aims of going back to school as being occupational, general education and personal interest (high to low respectively). In both groups, completed and terminated, the majority were employed before AVC. However, for those not employed before AVC family problems was the major reason.

A different order of indications obtained from CHI-Square results was that the terminated had a larger percentage of the trainees who obtained student loans. Also there was a larger percentage from the terminated group who received welfare payments before they entered training. The terminated ranked the degree of achievement not to be more than 50%.

Conclusion

The results of the study have been reported in this chapter in the following order: results associated with

social benefits, results in relation to private benefits and the results of Chi-Square tests when the trainees were placed in categories of Terminated against Completed, and Below against Above the established program internal rate of return.

CHAPTER IV

INTERPRETATION OF THE FINDINGS

This chapter examines how the rates of return and the present values both social and private, reported in the previous chapter, may be interpreted.

Basis for Assessing Social Investment

The Present Values. The data presented in chapter III addresses itself to one major issue, and that is whether investment in AVC programs was economically attractive or economically unattractive. The assessment is based on two techniques: the internal rates of return reported for every ten-year period of an individual's working life and also the present values reported for every ten-year period of an individual's working life at three selected interest rates, 4%, 10% and 14%.

When the present value technique was applied an investment in AVC training programs was judged to be economically attractive if indeed the present value of the discounted benefits equalled or exceeded the present value of the costs of the programs. For example, if the present value of the gross earnings stream (in the case of social benefits), discounted at any of the selected rates, turned out to be zero or positive, the investment was economically

attractive; on the other hand, if the present value discounted at any of the selected rates turned out to be negative, the investment was considered to be economically unattractive. Thus the higher the present value of the gross earnings stream the more attractive the program.

Table 25 illustrates the above statement, and three things are demonstrated. Two sub-programs of each of the main programs are compared; for example, in the Business Education Program the present value at 10% interest rate for the trainees who completed the program is $4,777, $1,220 short of the trainees who terminated. Because of differences in the present values of the two sub-programs, the pay-off periods are different: five to six years for the completed and four to five years for the terminated.

The second result is a comparison of sub-programs outside their major divisions. For example, Basic Academic upgrading (completed) has the highest present value of all the sub-programs ($21,472) and the Basic Academic upgrading (terminated) has the lowest present value of $287 (comparisons could have been any other sub-program). While it would take two to three years for the benefits of the Basic Academic upgrading to outweigh the costs, it would take 18 to 19 years for the same to occur in the case of the Basic Academic upgrading (terminated).

The third result that Table 25 reveals is concerned with whether or not the present value of a program is

TABLE 25

COMPARATIVE PRESENT VALUES (20-YEAR PERIOD) BY PROGRAM

Training Program	10% Interest Rate	Present Value	Pay-Off Period
1. Business Education (completed)		$4,777	5 to 6 years
2. Business Education (terminated)		$5,997	4 to 5 years
3. Nursing Orderly (completed)		$2,383	13 to 14 years
4. Nursing Orderly (terminated)		$4,776	6 to 7 years
5. Family Aid (completed)		$1,499	10 to 11 years
6. Family Aid (terminated)		-$13,277	N/A
7. High School (completed)		$3,588	7 to 8 years
8. High School (terminated)		$14,699	2 to 3 years
9. Academic Basic (completed)		$21,472	2 to 3 years
10. Academic Basic (terminated)		$287	18 to 19 years
11. Custodial (completed)		$7,251	5 to 6 years
12. Custodial (terminated)		-$10,138	N/A

positive or negative. Two programs, Family Aid (terminated) and Custodial (terminated) show negative present values of -$13,277 and -$10,138 respectively. This means, in the case of the two sub-programs: Custodial (terminated) and Family Aid (terminated), that the benefits are less than the costs. Thus these sub-programs are uneconomically attractive as far as society is concerned.

Differentials in the social present values could be attributed to two major factors. First of all, for the programs that show a higher present value among the terminated groups it could be a case of less costs due to the relatively shorter time students spend at the Centre. But consistency is lacking. The costs of the completed groups are necessarily not larger than the costs of the terminated groups in all the sub-programs. Costs embedded in the foregone productivity (based on former earnings) may explain the lack of consistency. Tables 5 and 6 , 9 and 10 , and 11 and 12 for the programs: Family Aid, Academic Basic and Custodial indicates that costs for the terminated were higher than costs of the groups who completed the same programs.

The second factor attributable to the differentials in the present values has been hinted already. If in fact foregone productivity of individuals in one program was of a higher value than foregone productivity in another program, the costs would differ. By the same token, if after-training earnings were valued differently upward or downward, differentials would exist within the same program or between

one program and another. Table 3 for Nursing Orderly (completed) shows that the mean earnings after training were $7,623 as compared to $5,702 for the mean earnings after training of the terminated group.

It would appear that in a program like the Nursing Orderly, the individuals who go through the entire program do not get higher wages than those individuals who terminate. If in fact terminated individuals obtained jobs in hospitals, they were employed under different job titles and such jobs carried higher wages than nursing orderlies.

As far as society is concerned and from an economic point of view, the two groups are not different. Both programs economically satisfy societal investment purposes, even though the terminated have a higher social present value than the completed group.

Negative Present Values. The two sub-programs with negative present values are: Family Aid (terminated) and Custodial (terminated). Tables 6 and 12 show that the benefits are short of costs by $872 and $373 respectively. The sums are minimal but they make a world of difference. A number of factors may be associated with this lack of positive present values. One reason could be that the benefits do not effect the costs because of underestimating benefits and overestimating costs, particularly one part of costs: the foregone productivity. The second speculation

could be in the calculations of income taxes, that maybe after-training benefits were heavily taxed. Family compositions remained constant for the two sub-programs before and after training, thus the differentials could not have been the function of tax allowance deductions associated with family size. However, because estimates were calculated in the same way for all programs it has been assumed that the calculations would imply a constant error if any.

Assuming that the calculations were correct, we may then maintain that the differentials observed were the result of the volume of the priceable productivity. Specifically, after-training productivity of the terminated individuals was priced less than before-training productivity, thus the training undertaken had no economic impact at all on these two sub-programs.

The Internal Rates of Return

At the bottom of each of the ten tables, in chapter III figures indicating the internal rates of return for different year periods are shown. The interpretation of the internal rates of return is different from that of the present value. In the latter case it is the rate which makes the estimated future gain in earnings equal to the present cost of obtaining the training.

Table 26 presents the internal rates of return for different sub-programs for the estimated earnings life period

of 20 years. Column 2 shows the rates of return without allowances and column 3 shows the internal rates of return with allowances.

As in the case of social internal rate of return, 20 years was the selected period since after that marginal benefits are minimal. For other different timings selected the reader is advised to refer to Tables 1 to 12 in Chapter III.

The interpretation of Table 26 may take several directions. It compares the internal rates of return when allowances are part and parcel of the beneifts and when benefits are devoid of allowances. Comparisons by sub-programs are also given. Finally, comparisons of the internal rates of return are compared program by program. One sees that in the Business Education Program (completed) the internal rate of return after 20 years of projected life earnings is 27.4% and over 100% when allowances received during training are included. In the sub-program Business Education (terminated) the rate is 40.4% while the marginal benefit is $1,440 and 94.9% when the marginal benefit is $2,435. The increase is accounted for allowances.

The Nursing Orderly Program follows the same pattern as Business Education. The internal rate of return of 15.4% for the completed and 22.5% for the terminated when allowances are added it grows to over 100% for the completed and to 65.3% for the terminated. As it has been argued before, the

TABLE 26

INTERNAL RATES OF RETURN (WITH ALLOWANCES AND WITHOUT ALLOWANCES) FOR THE ESTIMATED EARNING LIFE OF 20 YEARS BY SUB-PROGRAM

Program	Internal Rate of Return (Without Allowances)	Internal Rate of Return (With Allowances)
1. Business Education (completed)	27.4%	Over 100%
2. Business Education (terminated)	40.4%	94.9%
3. Nursing Orderly (completed)	15.4%	Over 100%
4. Nursing Orderly (terminated)	22.5%	65.3%
5. Family Aid (completed)	10.7%	26.9%
6. Family Aid (terminated)	Less than zero	Less than zero
7. High School (completed)	22.8%	78.0%
8. High School (terminated)	64.5%	Over 100%
9. Basic Academic (completed)	55.1%	Over 100%
10. Basic Academic (terminated)	17.2%	50.0%
11. Custodial (completed)	41.1%	50.6%
12. Custodial (terminated)	Less than zero	Less than zero

terminated in the Nursing Orderly Program attain higher earnings as compared to those who graduate presumably because they are employed by non-hospital institutions. The lower mean cost observed among the terminated group was due to a lesser number of days spent at the centre and thus due to lower lost foregone earnings.

The Family Aid Program is different from the pattern observed in the other two programs. First, the internal rate of return is low: 10.7% without allowances and 65.3% with allowances for the completed group. The terminated group's internal rate of return is less than zero whether or not allowances are taken into account. The fact is that individuals in the terminated group did not gain economically by going through the program. The observable higher mean cost in the sub-program: Family Aid terminated is a function of foregone earnings.

The internal rates of return for High School (completed) are: 22.8% without allowances and 78.0% with allowances. The rates for the terminated group are: 64.5% without allowances and over 100% with allowances. Once again the terminated group shows higher internal rates of return in both cases. A comparison of mean cost shows that the completed had a higher mean cost than the terminated. One explanation is that in staying longer at the Centre higher capital and operational costs were incurred and foregone earnings were greater.

The observed pattern where the terminated in three of the programs: Business Education, Nursing Orderly and High School, have a higher internal rate of return suggests, apart from reduced costs (due to a shorter time spent at AVC) that individuals may have entered the employment market at a favourable season. If this argument is accepted, one wonders whether the "left over" time of training really contributes to purposes related to employment opportunities.

The internal rates of return for Academic Basic Program are 55.1% without allowances and over 100% with allowances for the completed group, and 17.2% without allowances and 50.0% with allowances for the terminated group. The pattern mentioned above, where the terminated gained more than the completed group, is reversed in this program. This could be a case for the conspicuous consumption argument in that industries prefer to hire people with a certain amount of formal education, and that beyond the preferred level of education the preference ceases to be of any significance.

The last program, Custodial, shows that for the completed group the rates are 41.1% without allowances and 50.6% with allowances. The difference in the internal rate of return is, relative to other programs, small. It may be suggested that since the program operates for relatively shorter period, the volume of allowances is also small. Tables 11 and 12 show the difference of only $266 (see Column 7 of

either table).

The Custodial terminated group have zero internal rate of return with or without allowances. This is a case where inducements to attend training do not help the individual.

A point needs to be made clear at this juncture. To claim that training undertaken had no impact in the after-training productivity is in fact a sweeping statement, when other than direct economic impact is considered. It must be borne in mind that the training may have had some impact in latent and indirect economic factors. An illustration is in order.

Individuals in the terminated sub-programs, Family Aid and Custodial were presumably more productive before training. But we do not know the conditions of their services. Could there be cases where those individuals worked under unpalatable shifts, even though the money may have been good? Could it be that the jobs were far from places of domicile and many unpaid hours were lost in time and travel? Another case would be the individual who was on part-time employment before and secured a permanent, less-paying job after training. If in fact such were the cases, the individual would trade off higher wages for lower wages provided there were other benefits that the individual gained. To the individual under such circumstances the training may have been economically attractive. This preference is not

necessarily supported by monetary gains but is supported by the observable statistical significance of groups reported in chapter III on former and present job preferences.

Viewing these rates of return as a "bench mark" for private investment purposes, the ranking of the marginals from high to low is as follows: Academic Basic, Custodial, Business Education, High School, Nursing Orderly and Family Aid. (This merit considers completed sub-programs only).

Conclusion

The function of this chapter was to assist the reader to interpret the findings reported in the previous chapter.

CHAPTER V

SUMMARY, CONCLUSIONS AND IMPLICATIONS

THE PURPOSE OF THE STUDY

The main objective of the study was to evaluate and compare man-power training programs offered at the Edmonton Vocational Centre in terms of social and private monetary returns. The minor objective was to establish grounds for differences between trainees who terminate and those who complete their programs. The five programs examined were:

(a) Business Education Program,

(b) Nursing Orderly Program,

(c) Family Aid Program,

(d) Basic Skill Development Program:

  (i) High School Program

  (ii) Basic Academic Program, and

(e) Custodial Program.

METHODOLOGY

Fundamental to the analysis was the computation of present values and internal rates of return. Whether or not the findings show the investment choices to be economically attractive was the key issue on which the results were to be interpreted.

Marginal earnings streams were derived by finding the differences between cash inflows and cash outflows. Social cash outflows included social academic costs of the program (i.e. capital and current operational costs), plus the entire earnings stream figure by the choice to take the program. Social inflows consisted of expected future earnings as estimated from present earnings of the subjects. For the calculation of private returns private outflows included only the net foregone earnings, and the private inflows consisted of the projected net future earnings streams.

All marginal earnings were discounted at 4%, 10% and 14% rates of interest to find the present values of the investment in each of the training programs. The internal rates of return for each program were calculated for 10 year blocks of time up to 40 years as the longest expected working life period. Earnings data were not adjusted for secular trends, mortality, labour force participation rates, unemployment and family influences. The omission of the various "normal" adjustments was considered as having no significant effect in adult training programs. In a sense such adjustments would have been effective the first time trainees entered the employment world.

Assumptions

Assumptions fundamental to human capital and its investment were considered to be essential also to the conceptualization of the present study. The major

assumptions were thus:

1. Physical and human capital are similar, conceptually, and may be analyzed by similar tools.

2. Marginal earnings arising out of improved training represent marginal productivity.

3. Studies employing cross-section data provides dependable projections of cost-benefit analysis into the future.

FINDINGS

Social Benefits

When the present value method was used the capital sums turned out to range from -$13266 for the Family Aid program (terminated) to $21472 for the Basic Academic Program (terminated). The order of merits was as follows:

1.	Basic Academic Program (completed)	$21472
2.	High School Program (terminated)	$14697
3.	Business Education Program (terminated)	$ 5997
4.	Custodial Program (completed)	$ 7251
5.	Business Education (completed)	$ 4777
6.	Nursing Orderly Program (terminated)	$ 4776
7.	High School Program (completed)	$ 3588
8.	Nursing Orderly Program (completed)	$ 2383
9.	Family Aid Program (completed)	$ 1499
10.	Basic Academic Program (terminated)	$ 287
11.	Custodial Program (terminated)	-$10138
12.	Family Aid Program (terminated)	-$13266

The present values shown above take into account 20 years of projected earning life at the interest rate of 10%. Except for the Family Aid Program (terminated) and Custodial Program (terminated), the present value of the other sub-programs shows that the investment from society's point of view was economically attractive.

Another method used for evaluation purposes was the internal rate of return. When a different question was asked, "At what interest rate will benefits exceed costs?", the following results in order of merit were obtained:

1.	Basic Academic Program (completed)	56.8%
2.	High School Program (terminated)	44.7%
3.	Business Education Program (terminated)	27.9%
4.	Custodial Program (completed)	26.0%
5.	Business Education Program (completed)	22.7%
6.	Nursing Orderly Program (terminated)	20.3%
7.	High School Program (completed)	18.4%
8.	Family Aid Program (completed)	14.9%
9.	Nursing Orderly Program (completed)	13.4%
10.	Basic Academic Program (terminated)	10.6%
11.	Custodial Program (terminated)	-
12.	Family Aid Program (terminated)	-

The social internal rates of return were higher, than "normal" interest rates. On the other hand "normal" may be misleading because no study of this kind for manpower programs in Alberta is in existence.

Private Benefits

The analysis for private benefits was conducted in the same manner as in the case of social benefits. The present values for private benefits were as follows:

1.	High School Program (terminated)	$17889
2.	Basic Academic Program (completed)	$17959
3.	Custodial Program (completed)	$10665
4.	Business Education Program (terminated)	$ 8704
5.	Business Education Program (completed)	$ 5403
6.	Nursing Orderly Program (terminated)	$ 3812
7.	High School Program (completed)	$ 4643
8.	Nursing Orderly Program (completed)	$ 2122
9.	Family Aid Program (completed)	$ 153
10.	Basic Academic Program (terminated)	$ 2988
11.	Custodial Program (terminated)	$17179
12.	Family Aid Program (terminated)	$12451

The private present values are higher than the social present values but the order of merit does not change at all. The two sub-programs which had no score for the social present values do not have private present values either, indicating that individuals terminating from Custodial and Family Aid Programs do not attain monetary benefits.

The private internal rates of return for the sub-programs revealed similar order of merit, as the following list will indicate:

1.	High School Program (terminated)	64.5%
2.	Basic Academic Program (completed)	55.1%
3.	Custodial Program (completed)	41.1%
4.	Business Education Program (terminated)	40.4%
5.	Business Education Program (completed)	27.4%
6.	High School Program (completed)	22.8%
7.	Nursing Orderly Program (terminated)	22.5%
8.	Basic Academic Program (terminated)	17.2%
9.	Nursing Orderly Program (completed)	15.4%
10.	Family Aid Program (completed)	10.7%
11.	Custodial Program (terminated)	-
12.	Family Aid Program (terminated)	-

A comparison of the present values and the internal rates of return indicate that both the private present values and the private internal rates of return, due to capital and operational costs which were not incurred by the trainees, are higher than the social present values and the social internal rates of return.

IMPLICATIONS

Quantifiable Implications

The following implications are suggested by the findings of the study:

1. The overall high social internal rate of return 11.7% is sufficient and necessary evidence to justify the operation of the programs.

2. Higher present values and higher internal rates of return observable among terminated sub-programs: indicate wrong timing for operating the program. It would appear that the students who decide to drop out from the programs do so when employment opportunities are greater. This argument has the following implications:

(a) Clear evidence that programs should be in full operation when the employment opportunities are tight.

(b) The programs don't need to run on a continuous basis. Maybe the students would be better off if on and off campus opportunities were available. If a student felt the employment market was open for him at a particular time in point he should leave and come back when employment conditions have changed.

(c) A more rigorous evening program might ease the problem of trying to coerce students to complete their programs when employment conditions are attractive.

(d) On the other hand, if indeed returns for the terminated are higher, as the study has indicated, this finding indicates that trainees who stay until they have completed their programs are presumably aware of non-monetary benefits that may be derived from a full course.

3. The high present values and the internal rates of return among non-trade programs: High School and Basic Academic support Alberta's policy of manpower, that the program of manpower must be long range rather than short range i.e. not concentrating only on present occupational needs. Skill Development Program should thus be encouraged.

4. Low present values and low internal rates of return among occupationally oriented programs like Nursing Orderly indicates that society rates nursing orderlies productivity as being low. These are conditions to which the institutions may do very little.

5. Both the present values and the internal rates of return demostrate that social and private returns are higher than "normal". The allowances considered as inducements increase the present values and the interest rates substantially. One would like to think that the allowances are not allocated needlessly and deductions or elimination in the allowances will not affect the individual's decision to attend or not to attend training, very drastically. The returns are already high without allowances.

6. A good many more women tend to complete their programs than men do. The study reveals this (Table 34, page 131) but as it has been established before men, assuming the responsibilities to provide for their families may have dropped out for employment purposes and as such women taking these programs may be given undue credit.

7. As Table 40 page 137 indicates, it appears trainees who come into programs with a clearly stated goal complete their programs, implicitly achieve their goals. If this argument is stretched further the indication is that trainees may find it relevant if the Centre was goal oriented.

Impressions and Discussions

The following list points out some of the impressions gathered during the conduct of the study. They may thus be termed qualitative statements.

1. It was noted that the housing situation among the trainees was better for the individuals who were found in the employment world.

2. The trainees tended to come from older parts of Edmonton like the Central Eastern wards. For example, no trainee in the sample was located in the Riverbend area or Aspen Gardens location.

3. The fact that a good number of students obtained jobs through the Centre's counselling services is an indication of greater demand of such services, thus the need for re-organization of the counselling services.

4. Records at the Centre were below expected standards even though there is sufficient evidence that the Romanko administration is well aware of these inefficiencies. A centralized and maybe computerized record system would save the registry time and man hours.

5. The selection mechanism of new intakes should be made independent of former employment record, but where a dissonance existed those who were employed before should be given the first priority as it appears that they not only endeavour to complete their programs but also they seem to be more productive on the basis of their present values and the internal rates of return.

6. It appears that recipients of welfare payments prior to attending training drop out more often than non-welfare payment recipients and that the former do not necessarily improve their productive capabilities after training. The selection mechanism and counselling services should keep this point in mind.

IMPLICATIONS FOR FURTHER RESEARCH

Further research is necessary in the area of vocational education. There is a great need for a comparison of information obtained from other studies. Even though the rate of return may indicate comparative basis with the other forms of investment there should be information regarding other vocational programs here in Alberta and elsewhere in Canada.

Information of trainees' performance in industries is of great need for such information may help to co-ordinate programs offered at the vocational centres.

Investors in manpower training programs, be it society or the individuals, should know the longevity of the gains obtained from such programs. It may be erroneous to assume benefits dissipate after a certain time period or do not dissipate at all. When research of this nature is conducted it is essential to distinguish between transferable skills from non-transferable skills, skills that seem to weather and those that stay with the individual for the rest of his life (for example, the acquisition of routine).

This study has examined programs operating outside the industrial boundaries. Studies conducted for people who attain similar skills at the industries should provide grounds of comparisons for allocative efficiency purposes.

Finally the internal efficiency of the operations at the Centre must be related to the external efficiency (which this study has attempted to do).

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APPENDIX A

PRESENTATION OF CHI-SQUARE RESULTS ON DEMOGRAPHIC AND OTHER DATA

Demographic Variables and Above and Below the Program Internal Rate of Return

Tables 27 to 33 present the results of Chi-Square tests when demographic variables were related to the program Internal Rate of Return.

TABLE 27

CHI-SQUARE SHOWING THE DISTRIBUTION OF THE SAMPLE BY AGE AND BELOW OR ABOVE THE PROGRAM INTERNAL RATE OF RETURN

	18-24	25-31	Over 31	
Below 1	23 (11.6%)	22 (11.1%)	16 (8.08%)	62 (31.2%)
Above 2	41 (20.6%)	32 (16.2%)	64 (32.2%)	137 (68.8%)
TOTAL	64 (32.2%)	54 (27.1%)	81 (40.7%)	199 (100%)

Chi-Square = 6.90 P = 0.031

Table 27 shows that there is a statistical difference between the groups at 0.05 level of significance. The table also shows that the trainees who had reached the age of 31 years and over had a higher rate of return than any other age group.

TABLE 28

CHI-SQUARE SHOWING THE DISTRIBUTION OF THE SAMPLE BY PERMANENT RESIDENCE AND BELOW OR ABOVE THE PROGRAM INTERNAL RATE OF RETURN

	Urban	Rural	
Below (IRR)	40 (20%)	22 (11.1%)	62 (31.2%)
Above (IRR)	112 (56.3%)	25 (12.6%	137 (68.8%)
TOTAL	152 (76.4%)	47 (23.6%)	199 (100%)

Chi-Square = 7.029 PO = 0.008

Table 28 presents a significant difference between groups and shows that the individuals who resided in urban areas (Calgary and Edmonton) had a higher internal rate of return.

TABLE 29

CHI-SQUARE SHOWING THE DISTRIBUTION OF THE SAMPLE BY REASONS FOR LEAVING LAST JOB AND BELOW OR ABOVE THE PROGRAM INTERNAL RATE OF RETURN

	Sickness or Family Affairs	Unsatisfactory Job Conditions	Other	
Below (IRR)	8 (4%)	32 (16.1%)	23 (11.1%)	62 (31.2%)
Below (IRR)	12 (6%)	100 (50.3%)	25 (12.6%)	137 (68.8%)
TOTAL	20 (10.1%)	132 (66.3%)	47 (23.6%)	199 (100%)

Chi-Square = 9.039 P = 0.010

Table 29 indicates that the statistical significance in groups may be associated with a higher percentage of individuals who considered their jobs unsatisfactory and who are above program internal rate of return.

TABLE 30

CHI-SQUARE SHOWING THE DISTRIBUTION OF THE SAMPLE BY EMPLOYED AND NOT EMPLOYED BEFORE TRAINING AND BELOW OR ABOVE THE PROGRAM INTERNAL RATE OF RETURN

	Employed	Not Employed	
Below (IRR)	51 (25.8%)	11 (5.6%)	62 (31.3%)
Above (IRR)	80 (40.4%)	56 (28.3%)	136 (68.7%)
TOTAL	131 (66.2%)	67 (33.8%)	198 (100%)

Chi-Square = 10.446 P = 0.001

Table 30 indicates a high percentage of individuals who worked before training at AVC to have reached above the average group internal rate of return. Also, the table shows a low percentage of a group of individuals not employed before training to be below the program internal rate of return.

TABLE 31

CHI-SQUARE SHOWING THE DISTRIBUTION OF THE SAMPLE BY EMPLOYED AND NOT EMPLOYED AFTER TRAINING AND BELOW OR ABOVE THE PROGRAM INTERNAL RATE OF RETURN

	Employed	Not Employed	
Below (IRR)	58 (29.1%)	4 (2.0%)	62 (31.2%)
Above (IRR)	96 (48.2%)	41 (20.6%)	137 (68.8%)
TOTAL	154 (77.4%)	45 (22.6%)	199 (100%)

Chi-Square = 13.442 P = 0.000

The statistical significance observed in these groups in Table 31 is of the order that people who were employed after training were grouped above the program internal rate of return. The same pattern was observed among groups of trainees who worked before entering training.

TABLE 32

CHI-SQUARE SHOWING THE DISTRIBUTION OF THE SAMPLE BY REASONS FOR BEING UNEMPLOYED BEFORE TRAINING AND BELOW OR ABOVE THE PROGRAM INTERNAL RATE OF RETURN

	Sickness	Lack of Skill	Family Problems	Preference to Stay Home And Other Reasons	
Below	0	1 (0.5%)	59 (25.6%)	2 (1.0%)	62 (31.2%)
Above	4 (2%)	4 (2%)	106 (53.3%)	23 (11.6%)	137 (68.8%)
TOTAL	4 (2%)	5 (2.5%)	165 (82.9%)	25 (12.6%)	199 (100%)

Chi-Square = 9.979 P = 0.018

As Table 32 indicates, it appears that the individuals who scored above the group internal rate of return did not work before because of family problems. Sickness as a reason impeding employment scored very low for both the above and below the internal rate of return.

TABLE 33

CHI-SQUARE SHOWING THE DISTRIBUTION OF THE SAMPLE BY THE WELFARE PAYMENTS BEFORE TRAINING AND BELOW OR ABOVE THE PROGRAM INTERNAL RATE OF RETURN

	Received Welfare Payments	Did Not Receive Welfare Payments	
Below	3 (1.5%)	59 (29.6%)	62 (31.2%)
Above	28 (14.1%)	109 (54.6%)	137 (68.8%)
TOTAL	31 (15.6%)	168 (84.4%)	199 (100%)

Chi-Square = 7.898 P = .004

Table 33 indicates that individuals who did not receive welfare payments before entering training were above the established program internal rate of return.

Demographic Variables and Completed and Terminated Groupings

Tables 34 to 46 present the results of Chi-Square tests when demographic variables were related to groups of completed and terminated.

TABLE 34

CHI-SQUARE TEST OF SIGNIFICANCE BETWEEN COMPLETED AND TERMINATED AND SEX DISTRIBUTIONS

	Male	Female	Total
Completed	47 (22.8%)	100 (48.5%)	147 (71.4%)
Terminated	31 (15.0%)	28 (13.6%)	59 (28.6%)
TOTAL	78 (37.9%)	128 (62.1%)	206 (100%)

Chi-Square = 7.572 P = 0.005

Table 34 shows that of the completed group, females scored high. This indicates that males were prone to terminating from the program more often than females.

TABLE 35

CHI-SQUARE TEST OF SIGNIFICANCE BETWEEN COMPLETED AND TERMINATED AND BEFORE AVC EDUCATION LEVEL DISTRIBUTIONS

	Informal	Grade 6 or Less	Grade 6 - 9	Grade 10-12	College Other	Total
Completed	1 (0.5%)	5 (2.4%)	58 (28.2%)	81 (39.3%)	2 (1.0%)	147 (71.4%)
Terminated	2 (1.0%)	8 (3.9%)	22 (10.7%)	25 (12.1%)	2 (1.0%)	59 (28.6%)
TOTAL	3 (1.5%)	13 (6.3%)	80 (38.8%)	106 (51.5%)	4 ( )	206 (100%)

Chi-Square = 11.276 P = 0.023

Table 35 indicates that a large group of those who completed the program had previously attained grades 7-9 and grades 10-12. Below and above these two educational levels there was a tendency to drop out from the programs more often.

TABLE 36

CHI-SQUARE TEST OF SIGNIFICANCE BETWEEN COMPLETED AND TERMINATED AND APPRECIATION OF KNOWLEDGE DISTRIBUTIONS

	Much Gain	Little Gain	No Gain	Total
Completed	29 (14.1%)	47 (22.8%)	71 (34.5%)	147
Terminated	19 (9.2%)	24 (11.7%)	16 (7.8%)	59
TOTAL	48 (23.3%)	71 (34.5%)	87 (42.2%)	206 (100%)

Chi-Square = 8.210 P = 0.016

Table 36 indicates that the majority of the individuals who completed the programs felt they had little gain in the appreciation of knowledge per se.

TABLE 37

CHI-SQUARE TEST OF SIGNIFICANCE BETWEEN COMPLETED AND TERMINATED AND BETTER COMMUNICATION IN THE FAMILY DISTRIBUTIONS

	Much Gain	Little Gain	No Gain	Total
Completed	67 (32.5%)	41 (19.9%)	39 (18.8%)	147
Terminated	41 (19.9%)	13 (6.3%)	5 (2.4%)	59
TOTAL	108 (52.4%)	54 (26. %)	44 (21.4%)	206 (100%)

Chi-Square = 11.570 P = 0.003

Table 37 says that most individuals completing or terminating their programs felt they gained much in improved communication within their families. Both groups (completed and terminated) show low distributions for having gained little as far as improved family communication is concerned.

TABLE 38

CHI-SQUARE TEST OF SIGNIFICANCE BETWEEN COMPLETED AND TERMINATED AND ATTENTION TO PHYSICAL FITNESS DISTRIBUTIONS

	Much Gain	Little Gain	No Gain	Total
Complete	74 (64.3%)	47 (79.7%)	26 (81.3%)	147
Terminated	41 (35.7%)	12 (20.3%)	6 (2.9%)	59
TOTAL	115 (55.8%)	59 (28.6%)	32 (15.5%)	206

Chi-Square = 6.287 P = 0.043

Table 38 shows that most of the students who completed and terminated their courses felt they had gained much when asked if they learned something regarding their physical fitness.

TABLE 39

CHI-SQUARE TEST OF SIGNIFICANCE BETWEEN COMPLETED AND TERMINATED AND MAJOR GOAL AT AVC DISTRIBUTIONS

	Occupational	General Education	Personal Interest	Total
Completed	103 (78.0%)	40 (78.4%)	4 (33.3%)	147
Terminated	40 (28.0%)	11 (21.6%)	8 (66.7%)	59
TOTAL	143 (69.4%)	51 (24.8%)	12 (5.8%)	206

Chi-Square = 9.769 P - 0.007

Table 39 indicates that both groups, terminated and completed, ranked their major goals for entering training in the following order of merit: occupational, general education, and personal interest (high to low respectively.

TABLE 40

CHI-SQUARE TEST OF SIGNIFICANCE BETWEEN COMPLETED AND TERMINATED AND DEGREE OF ACCOMPLISHMENT OF THE MAJOR GOAL DISTRIBUTIONS

	100%	75%	50%	0%	Total
Completed	71 (81.6%)	37 (74.0%)	28 (19.0%)	11 (7.5%)	147
Terminated	11 (13.4%)	13 (26.0%)	16 (27.1%)	19 (32.2%)	59
TOTAL	82 (39.8%)	50 (24.3%)	44 (21.4%)	30 (14.6%)	206

Chi-Square = 28.423 P = 0.000

Table 40 shows X^2 distribution according to the degrees of accomplishment of the goal reported above. Among the terminated group it appears a larger percentage ranked their achievement level to be 50% and the largest group among the terminated felt that their goal was not achieved at all, 0% achievement. Slightly less than one-half of the completed group ranked their achievement of the goal as being 100%.

TABLE 41

CHI-SQUARE TEST OF SIGNIFICANCE BETWEEN COMPLETED AND TERMINATED AND PREFER PRESENT JOB DISTRIBUTIONS

	Prefer	Do Not Prefer	Total
Completed	84 (80.0%)	6 (46.2%)	90
Terminated	21 (20.0%)	7 (53.8%)	28
TOTAL	105 (89%)	13 (11%)	118 (100%)

Chi-Square = 5.571 P = 0.01

As in the case of the degree of goal accomplishment the trainees, as observed in the distribution contained in Table 41, preferred their present jobs to the previous ones.

TABLE 42

CHI-SQUARE TEST OF SIGNIFICANCE BETWEEN COMPLETED AND TERMINATED AND EMPLOYED BEFORE AVC OR NOT DISTRIUBTIONS

	Employed	Not Employed	Total
Completed	103 (76.9%)	43 (60.6%)	146
Terminated	31 (23.1%)	28 (39.4%)	59
TOTAL	134 (65.4%)	71 (34.6%)	205 (100%)

Chi-Square = 6.017 P = 0.014

From the distributions presented in Table 42, it appears among both groups terminated and completed had higher percentages in their categories of the people employed before training. Observable differences are that less than a half of the employed people before training were unemployed, whereas among the terminated group the number of people previously employed was three people over and above the unemployed before training.

TABLE 43

CHI-SQUARE TEST OF SIGNIFICANCE BETWEEN COMPLETED AND TERMINATED AND REASON FOR NOT BEING EMPLOYED BEFORE AVC DISTRIBUTIONS

	Sickness	Lack of Skill	Family Problems	Preference to Stay Home and Other Reasons	Total
Completed	7 (3.4%)	6 (2.9%)	122 (59.2%)	12 (5.8%)	147
Terminated	5 (2.4%)	8 (3.9%)	39 (18.9%)	7 (3.4%)	59
TOTAL	12 (5.8%)	14 (6.8%)	161 (78.2%)	19 (9.2%)	206

Chi-Square = 8.723 P = 0.033

Table 43 indicates that the highest percentages in both groups, terminated and completed, indicated that family problems was a major factor that deterred employment opportunities before training. A second observation indicates that the terminated group viewed "lack of skill" as the second major reason for not being employed previously.

TABLE 44

CHI-SQUARE TEST OF SIGNIFICANCE BETWEEN COMPLETED AND TERMINATED AND JOB RELATED TO TRAINING DISTRIBUTIONS

	Related	Not Related	Total
Completed	99	16	115
Terminated	28	14	42
TOTAL	127 (80.9%)	30 (19.1%)	157 (100%)

Chi-Square = 7.506 P = 0.006

As Table 44 shows, the majority of trainees felt that their jobs after training were related to the kind of training they received, while among the terminated the number indicating job irrelevance with training was just a half of those who thought their jobs were related to the training received; among the completed less than on-fifth saw no job relationship and the training received.

TABLE 45

CHI-SQUARE TEST OF SIGNIFICANCE BETWEEN COMPLETED AND TERMINATED AND STUDENT LOAN DISTRIBUTIONS

	Obtained	Not Obtained	Total
Completed	20 (58.8%)	126 (75.7%)	146
Terminated	14 (41.2%)	45 (26.3%)	59
TOTAL	34 (16.6%)	171 (83.4%)	205 (100%)

Chi-Square = 3.056 P = 0.080

Table 45 shows higher percentages of the groups to have received no loans in both cases: completed and terminated. Among the terminated one-third received student loans and among the completed group only one-sixth received student loans.

TABLE 46

CHI-SQUARE TEST OF SIGNIFICANCE BETWEEN COMPLETED AND TERMINATED AND WELFARE PAYMENTS BEFORE AVC DISTRIBUTIONS

	Received	Not Received	Total
Completed	18 (56.3%)	129 (74.1%)	147
Terminated	14 (43.8%)	45 (25.9%)	59
TOTAL	32 (15.5%)	174 (84.5%)	206 (100%)

Chi-Square = 4.232 P = 0.039

Table 46 shows a higher percentage of those who received welfare payments before training to be among the terminated group. In the completed group the reverse was the case. However, there is a tendency observed in the table to the effect that whether completed or terminated category, the number of those who did not receive welfare before training is bigger than the number of the trainees who did receive welfare payments before attending training.

APPENDIX B

INTERVIEW RECORD SHEET

ALBERTA VOCATIONAL CENTRE STUDENT SURVEY

NAME: _____

ADDRESS: _____

PHONE: Home _____ Bueiness _____

SOCIAL INSURANCE NUMBER: _____

1. What is your present age?

( ) 1. 17 or less
( ) 2. 18 to 24
( ) 3. 25 to 31
( ) 4. 32 to 38
( ) 5. 39 to 45
( ) 6. 46 to 51
( ) 7. 52 or older

2. Sex?

( ) 1. Male
( ) 2. Female

3. Marital status?

( ) 1. Single
( ) 2. Married
( ) 3. Divorced/separated
( ) 4. Widow/widower

4. If you are married, are you living with your spouse?

( ) 1. Yes
( ) 2. No

5. What ethnic group do you belong to?

( ) 1. White (Caucasian)
( ) 2. North American Indian
( ) 3. Metis
( ) 4. Any other race

6. What language did you learn to speak first?

( ) 1. English
( ) 2. French
( ) 3. German
( ) 4. Ukrainian
( ) 5. One of the North American Indian languages
( ) 6. Other (please specify) _____

7. Which of the following centres in Alberta is the nearest to your permanent place of residence (before training at A.V.C.)?

( ) 1. Edmonton
( ) 2. Medicine Hat and Lethbridge
( ) 3. Edson
( ) 4. Calgary
( ) 5. Red Deer
( ) 6. Grande Prairie and Peace River
( ) 7. Vermilion and St. Paul
( ) 8. Outside Alberta but in the Prairie Provinces and B.C. (e.g., Saskatchewan)
( ) 9. Outside Alberta but further than Manitoba (e.g., Ontario)

8. What was the highest level of education you attained before entering A.V.C.?

( ) 1. No formal education
( ) 2. Elementary (e.g., Grade 1-6)
( ) 3. Junior High (e.g., Grade 7-9)
( ) 4. Senior High (e.g., Grade 10-12 or 13)
( ) 5. Apprenticeship trade training

9. What was/ is the highest level of your father's education?

( ) 1. No formal education
( ) 2. Elementary (e.g., Grade 1-6)
( ) 3. Junior High (e.g., Grade 7-9)
( ) 4. Senior High (e.g., Grade 10-12 or 13)
( ) 5. Apprenticeship trade training
( ) 6. College or technical training
( ) 7. University training

10. What was/is the highest level of your mother's education?

( ) 1. No formal education
( ) 2. Elementary (e.g., Grade 1-6)
( ) 3. Junior High (e.g., Grade 7-9)
( ) 4. Senior High (e.g., Grade 10-12 or 13)
( ) 5. College or technical education
( ) 6. University education

11. What would you (roughly) say is/was your father's and mother/s combined yearly income (before tax) and before they turned 65 years of age?

( ) 1. Below $3,000
( ) 2. $2,000 to $4,999
( ) 3. $5,000 to $6,999
( ) 4. $7,000 to $9,999
( ) 5. $10,000 to $14,000
( ) 6. $15,000 or over

12. If you did not work at all one year before you started training at A.V.C., which of the following reasons was the most important? (check one)

( ) 1. I was sick or disabled
( ) 2. Problems of babysitter
( ) 3. Child/children were too young
( ) 4. Child/children was/were sick most of the time, or disabled
( ) 5. Could not obtain suitable employment
( ) 6. No special skill to qualify for a job
( ) 7. Did not look for employment
( ) 8. Turned down by employers so many times that I gave up
( ) 9. Other (please specify):

_____

_____

_____

13. If you were employed for one month or more during the year before coming to A.V.C., list below three job/jobs you were engaged in. (Include self-employment and employment by others.) Please list the most recent one first.

	(a) EMPLOYER (e.g., government or company)	(b) JOB TITLE (e.g., printer)	(c) DURATION IN (months)
1.			
2.			
3.			

	(d) AVERAGE EARNINGS PER WEEK at the time you left each job	(e) HOLIDAY PAY AND BONUS	(f) AMOUNT PAID IN TAXES
	$ per week	$	$
	$ per week	$	$
	$ per week	$	$

14. Were you trained for the job/jobs you were engaged in?

( ) 1. Yes
( ) 2. No

15. If the job required training, how did you acquire it?

( ) 1. Correspondence School
( ) 2. College
( ) 3. On-the-job training
( ) 4. Apprenticeship
( ) 5. Friends or relatives

16. What was the one major reason for you to decide to leave your last job before coming to A.V.C.? (Please read the whole section first, and check one.)

( ) 1. Sickness, including disability
( ) 2. Family moved

(continued)

( ) 3. In order to travel
( ) 4. Other family affairs (e.g., sickness of a family member)
( ) 5. No advancement opportunities
( ) 6. The job was too strenuous (mentally or physically)
( ) 7. The job required working under unfavorable weather conditions
( ) 8. Unsatisfactory conditions of service (e.g., could not get along with boss)
( ) 9. Wages too low
( ) 10. So I could obtain training at A.V.C.
( ) 11. Work finished or business slowed down
( ) 12. Was not trained for the job so I was replaced
( ) 13. Employer bought new equipment which I could not use without training
( ) 14. The job was seasonal or of a temporary nature
( ) 15. Any other (specify)

_____

_____

17. What was the major reason for you to decide to go back to school? (Check one.)

( ) 1. Improve chances of steady employment
( ) 2. Increase chances of promotion at work
( ) 3. Learn a new trade or occupation
( ) 4. Upgrading (education/trade)
( ) 5. Raise earnings
( ) 6. Personal interest (learning for the sake of learning)
( ) 7. Other (please specify)

_____

_____

18. What was your one most important source of information about this institution?

( ) 1. My former teachers
( ) 2. Family member or friends
( ) 3. Mass media (newspaper, radio or television)
( ) 4. Sponsoring agencies (e.g., Canada Manpower, Depart of Indian Affairs, Health and Social Welfare Department)
( ) 5. Visiting speaker or counsellor
( ) 6. Brochures or calendars
( ) 7. Graduates or other students who have attended this institution
( ) 8. Other (specify)

_____

_____

19. When you first arrived at A.V.C., who gave you the most help in discussing your course or program?

( ) 1. A.V.C. counsellor
( ) 2. Instructor
( ) 3. Other students
( ) 4. A.V.C. supervisor or his assistant
( ) 5. Student council representative
( ) 6. Registrar
( ) 7. Program head
( ) 8. Other (please specify)

_____

_____

20. How would you rate the help you were given in selecting and planning your course or program?

( ) 1. Excellent
( ) 2. Good
( ) 3. Satisfactory
( ) 4. Poor

21. In this section you are required to indicate the degree of gain in the following item while you were at A.V.C.:

Items	Much Gain 3	Little Gain 2	No Gain 1
1. Appreciation of knowledge (e.g., to want to know about the world in general)			
2. Understanding of social, political and economic problems of Alberta and Canada			
3. Knowledge of dealing with forms (e.g., filling income tax form, filling or even writing an application form)			
4. Family life (e.g., better communication between you and your spouse or helping your children)			
5. Involvement in community activities (e.g., attending meetings and feeling free to state your views)			
6. Interest in leisure activities (e.g., visiting art galleries, museums, reading for leisure)			
7. Paying attention to physical fitness			
8. Knowledge to shop wisely and selectively			

22. While training at A.V.C., did you receive a training or living allowance?

( ) 1. Yes
( ) 2. No

23. If you received a training or living allowance, indicate the kind of allowance:

( ) 1. Training or living allowance

( ) 2. Travel allowance or transportation allowance
( ) 3. Other (please specify)

_____

_____

24. Indicate the amount of each allowance received per week; the number of weeks you received these allowances, and who you received the allowances from:

	TRAINING OR LIVING ALLOWANCE	TRAVEL ALLOWANCE	OTHER
1. Amount per week	_____	_____	_____
2. Number of weeks	_____	_____	_____
3. Who you received it from	_____	_____	_____

1. Social Development
2. Manpower
3. Provincial Government
4. Workman's Compensation Board
5. Indian Affairs
6. Other (please specify)

_____

_____

25. Did you obtain a student loan when you were at AVC.? How much did you receive?

$ _____

26. If you had a part-time job while at A.V.C., estimate the total earnings you received the whole period (it might be easier to multiply hourly wage by the number of days you worked).

Total amount of earnings from part-time job:

$_____

27. What is it that you went to A.V.C. to achieve (e.g., your ultimate goal)?

_____

_____

_____

_____

28. Did you achieve what you set out to accomplish?

( ) 1. Totally (100%)
( ) 2. Mostly (75%)
( ) 3. Partly (50%)
( ) 4. Not at all (0%)

29 (a) Are you presently employed?

( ) 1. Yes
( ) 2. No.

29 (b) If not employed, could you please check one reason from the following list:

( ) 1. I was sick or disabled
( ) 2. Problems of babysitter
( ) 3. Child/children were too young
( ) 4. Child/children was/were sick most of the time, or disabled
( ) 5. Could not obtain suitable employment

(continued)

( ) 6. No special skill to qualify for ajob
( ) 7. Did not look for employment
( ) 8. Turned down by employers so many times that I gave up
( ) 9. Other (please specify):

_____

_____

_____

30. If you are employed, is your present job:

( ) 1. Temporary or seasonal
( ) 2. Permanent
( ) 3. Part-time

31. Is the job:

( ) 1. The job you trained for
( ) 2. Related to the job you trained for
( ) 3. Unrelated to the job you trained for

32. How do you like your present job as compared to the one you had before attending A.V.C. training?

( ) 1. Like the job as well
( ) 2. Don't like the job as well

33. This section requires you to account for the entire time since leaving A.V.C. In other words, you are requested to write down your employment records and the record of time you spent without working. Please include all welfare payments you have received since leaving A.V.C.

Total time in months since leaving A.V.C. is:

_____ (_____months

(a) Total time spent on each job and total time spent without working	(b) Worked or did not work	(c) Employer/type of welfare payment.
1. _____ months	_____	_____
2. _____ months	_____	_____
3. _____ months	_____	_____
4. _____ months	_____	_____
5. _____ months	_____	_____

(d) Job Title	(e) Earnings per week when I left the job	(f) Holiday pay and bonus	(g) Amount paid in taxes
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____

34. Listed below are some of the possible means of obtaining employment. Which one method did you use to obtain the job you were engaged in immediately after A.V.C. training?

( ) 1. Looked up in newspaper/magazine, heard on radio, saw it advertised on company door
( ) 2. Learned about the job from a friend or from a relative
( ) 3. Registered with Manpower Employment Exchange

(continued)

( ) 4. Consulted former employer or formen
( ) 5. A.V.C. staff
( ) 6. Other means (please specify)

_____

_____

35. How many times did you try to look for the job you were engaged in soon after A.V.C. training?

( ) 1. Tried once
( ) 2. Tried twice
( ) 3. Tried three times
( ) 4. Tried four or more times

36. Did the size of your family increase by birth, adoption or close relative coming to live with you during your training period?

a. Before training family size including yourself:

1_____2_____3_____4_____5_____

or more _____

b. After training family size including yourself:

1_____2_____3_____4_____5_____

or more _____

APPENDIX C

FREQUENCIES OF RESPONDENTS BY DEMOGRAPHIC AND OTHER VARIABLES

TABLE 47

FREQUENCIES OF RESPONDENTS BY DEMOGRAPHIC AND OTHER VARIABLES

Variable	18 - 24	25 - 31	Over 31	Total Responses
1. Age	71	56	85	206
2. Marital Status	Single	Married	Other	
	58	84	64	206
3. Family Size Before Training	One Person	Two to Three	Over Four	
	67	42	67	176
4. Family Size After Training	96	55	55	206
5. Employer Before Training	Government	Company	Self	
	26	94	4	124
6. Employer After Training	68	84	6	158
7. Reasons for leaving last job	Sickness or family affairs	Unsatisfactory job conditions	Other	
	56	8	-	64
8. Major Goal at AVC	Occupational	General Education	Personal Interest	
	143	51 (24%)	12 (7%)	206

Variable	Much Gain	Little Gain	No Gain	Total Responses
9. Knowledge to shop wisely	71	68	67	206
10. Participation in leisure time activities	73	65	68	206
11. Attention to physical fitness	88	59	59	206
12. Better Communication in the family	77	54	75	206
13. Local community involvement	64	61	81	206
14. Appreciation of knowledge	51	71	84	206
15. Knowledge of filling in forms	96	64	46	206

16. Sex	Male	Female	
	78	128	206
17. Permanent Residence	Urban (Calgary and Edmonton)	Rural	
	158	48	206
18. Employed before AVC or not	Employed	Not Employed	
	134	71	206

Variable			Total Responses
19. Trained for a job (before AVC)	Trained	Not Trained	
	10	122	133
20. Means of training for the job before AVC	On-the-job Training	Others	
	4	6	10
21. Employed after AVC	Employed	Not Employed	
	158	48	206
22. Job related to training	Related	Not Related	
	127	30	157
23. Prefer present job	Prefer	Do Not Prefer	
	105	13	118
24. Student Loan	Obtained	Not Obtained	
	34	171	206
25. Welfare payments before AVC	Received	Not Received	
	32	174	206
26. Earnings before AVC	Earned	Not Earned	
	133	73	206
27. Payment of taxes before AVC	Paid	Not Paid	
	95	111	206

Variables				Total Responses
28. Allowances	Received	Not Received		
	201	5		206
29. Part-time earnings earned	Earned	Not Earned		
	20	186		206
30. Welfare payments during training	Received	Not Received		
	21	185		206
31. Further training after AVC	Continued	Not Continued		
	9	-		9
32. Welfare payments after AVC	Received	Not Received		
	49	157		206
33. Earnings after AVC	Earned	Not Earned		
	156	50		206
34. Mother Tongue	English	French	N.A. Indian Language	Other
	136	11	18	41
35. Ethnicity	White	N.A. Indian	Metis	Other
	169	19	12	6
36. Accomplishment of the major goal	100%	75%	50%	0%
	82	50	44	30

Variable					Total Responses
37. Reason for not being employed before AVC	Sickness	Lack of Skill	Family Problems	Preference to stay home and other reasons	
	9	7	5	26	47
38. Reason for not being employed after AVC	4	3	14	28	49
39. Number of tries for employment after AVC	Once	Twice	Three Times	Four times or More	
	106	17	8	17	148
40. Reason for going back to school	Improve choice of employment	Learn a Trade	Upgrade	Personal Interest	
	27	49	62	68	206
41. Information about AVC	Mass Media	Sponsor	Informal means (friend/relative)	Other Means	
	23	75	29	79	206
42. Advising service at AVC	Counsellor	Instructor	Administrator	Students	
	77	74	14	14	179
43. Rating the advice at AVC	Good	Satisfactory	Poor		
	74	56	50		180

Variable							Total Responses
44. Means of obtaining employment after AVC	Mass Media	Friend or Relative	Former employer	AVC Staff	Manpower Employment Exchange	Other	
	55	30	26	24	25	2	162
45. Before AVC educational level	Informal	Grade 6 or Less	Grade 7-9	Grade 10-12	College and Other		
	3	12	80	102	4		201
46. Father's education	19	56	67	31	31		204
47. Mother's education	13	61	61	50	20		205
48. Parents' income bracket	3,000 and less	3,000-7,000	8,000-10,000	Over 15			
	34	51	26	74			205
49. Sponsor	Prov. Govt.	Man-Power	W/Compensation	Indian Affairs	Other	More than One	
	82	73	6	12	10	8	191

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